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# THE JOURNAL

*of the*

## Missouri State Medical Association

The Official Organ of the State Association and Component Societies  
Issued Monthly Under Direction of the Publication Committee

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# THE JOURNAL

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NUMBER 1

E. J. GOODWIN, M.D., Editor  
1023 Missouri Building, St. Louis, Mo.  
Telephone, Jefferson 5261.

PUBLICATION COMMITTEE  
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M. A. BLISS, M.D.

### THE PRESENT DAY TREATMENT WITH THE FEMALE SEX HORMONE\* 1

FRED EMMERT, M.D.  
ST. LOUIS

If we sift the enormous and often conflicting literature on the female sex hormone we find only a few outstanding facts which seem to be definitely established. We know that the ovary remains in the dormant state from birth until the approach of puberty, and that during this first epoch in the life of the female it does not as yet produce any hormone in appreciable amounts.

In contradistinction to the sex gland the other endocrine glands are active from the very beginning. Among these, the pituitary gland, which is composed of two lobes, secretes different hormones in each lobe. It is the hormone produced in the anterior lobe of the pituitary gland which has a fundamental influence upon the sex organs because it stimulates the ovary both as to growth and function. Under the influence of the anterior part of the hypophysis the follicles of the ovary ripen and secrete a hormone, which in turn causes a growth and proliferation of the endometrium in the uterus. After the rupture of the follicle there is established in the latter the corpus luteum which also produces a hormone that in its action is similar to the hormone contained in the follicle.

We must, therefore, bear in mind that the anterior lobe of the pituitary is a sort of super-sex gland. Without the pituitary gland there is no activity of the ovary, and without the ovary there is no activity of the uterus. All the disturbances of function of the genital organs can be explained by this simple formula.

Subnormal activity or hypofunction of the ovary is characterized by the absence or scantiness of menstruation (amenorrhea or oligo-

menorrhea) frequently accompanied by obesity and sterility. Such individuals may show plainly in their outer appearance that important parts of their organisms are below par. They may be either infantile or asthenic or a combination of the two. Frequently, however, there is no outward and visible indication of their constitutional inferiority. Such patients seem to be perfectly normal and anomalies can be detected only by careful examination.

There are two large groups of causes which may be responsible for such functional debility, viz., the constitutional and the acquired. I shall speak first of the latter because the causes of acquired hypofunction of the ovary are the less frequent. In most instances of this kind the patients have menstruated more or less normally a certain length of time but debilitating conditions, such as tuberculosis, acute infections, syphilis, change of climate and occupation, bring about an amenorrhea or oligomenorrhea which may be remedied after the specific cause has been removed.

Far greater is the number of individuals whose sex glands are constitutionally weak from birth. These begin to menstruate much later than the average girl, their periods are shorter, scantier and less frequent than normal, and may cease far earlier than the usual time of menopause. In such persons, however, the ovaries are very rarely the only glands involved; most of the endocrine structures are likewise affected, particularly the hypophysis. If the latter is below par there is not sufficient hormone from the anterior pituitary lobe to stimulate the ovary satisfactorily. In other words, in all cases of hypofunction of the ovaries both the ovaries and the anterior lobe of the pituitary are insufficient.

Overactivity of the ovaries manifests itself in profuse and prolonged menstruation; at the time of puberty these menorrhagias may change into metrorrhagias of excessive and alarming duration.

This division into a hypofunction and hyperfunction includes most of the disturbances due to functional disorders of the ovaries; but we

\* Read before the St. Louis Medical Society, October 14, 1930.

1. From the Department of Gynecology and Obstetrics, St. Louis University School of Medicine.

may admit to ourselves that our knowledge on this subject is as yet incomplete.

Still more unsatisfactory is the present state of treatment. You will recall that for many years our therapy for all functional disorders consisted of the oral administration of the whole ovary or certain parts of it. Sometimes this substance cured an existing amenorrhea and sometimes it checked a persistent bleeding. When we could not explain this remarkable difference in the effect of one and the same medicine we invented beautiful theories.

Then it was realized that in any dried product there could be only a minute quantity of actual hormone, and this tiny amount was sure to be effectively destroyed by the gastric juice long before it could possibly be absorbed into the organism. Then extracts for intramuscular use appeared on the market under various trade names and we started to use the syringe as eagerly as we had previously prescribed the tablets. Claims made by endocrine enthusiasts always stirred up our hopes although we could never quite obtain the same results ourselves; and when men like Allen and Doisy, Frank, Conners, Evans and others clearly demonstrated to us that the commercial preparations contained only small amounts of hormones, we began to realize that with our endocrine specialists the wish had largely been father to the thought.

Fortunately, the time has at last come for the dreams to be realized. We must give tribute to the men who put organotherapy on a scientific basis. As far as our particular subject is concerned, an exact standardization of the female sex hormone has been made possible through the fundamental work of Allen and Doisy. Of still greater importance was Doisy's recent discovery of the ovarian hormone in pure form. Hand in hand with this remarkable achievement goes the recent isolation of the anterior pituitary hormone.

These two discoveries mark a new milestone in the development of organotherapy. From now on we shall be in a position to work with accurate amounts of a definitely determined substance. We shall use the anterior pituitary hormone to stimulate the ovaries and to awaken them from slumber, as it were, or to intensify their activity if they are too sluggish; and while we are waiting for the ovaries to respond to the stimulus of the hypophysis we shall inject the ovarian hormone in its new and pure form so that the uterus may not be deprived of the essential need of the ovarian secretion.

To put it in other words, in ovarian hypofunction we shall hereafter carry out a stimulation and a substitution therapy simultaneously. Where, however, there is no ovarian tissue left, as after castration, or where it is definitely

atrophied, as after menopause, there is obviously no need for pituitary hormone and only ovarian hormone is required to substitute for lack of secretion from the sex gland.

These therapeutic considerations are still largely theoretical but it will not take long to demonstrate the effect of such treatment in the various forms of ovarian insufficiency, to establish the exact dosage, to tell us of the probable duration of the treatment, and to give us an insight into the influence exerted upon the organism at large.

713 Metropolitan Building.

## TRIGEMINAL NEURALGIA AND HIGH BLOOD PRESSURE

W. T. COUGHLIN, M.D.

ST. LOUIS

Any surgical patient with a very high blood pressure becomes a more serious operative risk on that account. The particular dangers to such patients are cerebral hemorrhage and acute dilatation of the heart.

We should remember that a major operation throws a severe strain upon the vital resources of the patient, and in older patients we often find that considerable time is required for complete recovery from even simple operations, such as uncomplicated appendectomy, hernia, etc. It is not unusual indeed to see elderly persons, and sometimes those who are much younger, begin to fail as late as a week or ten days after an operation even though the wound is quite normal. This happens because the heart becomes exhausted by the prolonged strain. The first sign of this exhaustion as I have noted in many of my cases is edema of the dependent parts.

Patients over fifty years of age are very likely to be suffering from impaired renal function and while perhaps essential high blood pressure is not commonly associated with demonstrable renal disease, it is acknowledged that high blood pressure is often associated with damaged kidneys.

Surgeons and I believe also internists quite generally hold the opinion that high blood pressure or renal disease, or both, greatly increase the operative risk to the patient. There is no doubt that excitement raises blood pressure. Whether the increase in blood pressure that accompanies the administration of ether and nitrous oxide oxygen is due solely to the excitement that they produce, is not the question under discussion. It is agreed that they do raise the blood pressure.

It has been stated that ethylene gas anesthesia produces no change in the blood pressure. It might just as well be said that pa-



tients do not pass through a stage of excitement during the administration of ethylene gas. Patients often become wildly excited and struggle strenuously while being anesthetized with ethylene. It is my observation that the only anesthetic which does not ever produce excitement and a rise in blood pressure is a local anesthetic. Yet patients about to undergo an operation often show a preoperative rise in pressure regardless of the kind of anesthetic to be used. It would seem desirable therefore that when a patient with high blood pressure requires a surgical operation the surgeon should refrain from using a general anesthetic if possible. Those who still doubt the importance of local anesthesia do not appreciate what a variety of surgical operations can be done under the local infiltration of one-half per cent solution of novocaine without suprarenal extract. I desire to state very clearly that the possibility of inducing real anesthesia locally has been demonstrated too often to permit of any argument.

#### LOCAL ANESTHESIA IN TRIGEMINAL NEURALGIA

In the operation of root section for trigeminal neuralgia, local anesthesia has special advantages. The operation can be carried out while the patient is in the sitting position. In this position there is a minimum of engorgement of the vessels and the patient bleeds less. Ether anesthesia, even if the patient is sitting, increases vascular engorgement. Also with the patient sitting up the line of the surgeon's vision is horizontal, the line in which vision is more at ease. During the induction of local anesthesia there is no period of excitement with its concomitant rise in blood pressure. When the nerve root is reached one can easily make certain that he has cut all the fibers that he wishes to cut and thus avoid a second or third operation on the same patient. Local anesthesia is of particular advantage for the partial operation in which the surgeon aims to sever only the lower fibers and preserve those which supply the conjunctiva and cornea. The postoperative course is much more pleasant, the nausea and vomiting so frequent after ether anesthesia being rarely seen.

Patients operated upon under general anesthesia are safest in the recumbent position; in fact, such position is sometimes imperative. The lower the head the greater the congestion and therefore more bleeding. Ether inhalation increases congestion and bleeding, therefore in patients with high blood pressure it is decidedly contraindicated.

In a series of ninety cases under local anesthesia there has not been a single death and there has been but one unsuccessful case, if one

might call it so. It was the first case in which I tried the method of Frazier, i. e., leaving the sensory fibers for the conjunctiva and cornea. I left a goodly part of these fibers for the second division as well, and within six months I had to do a complete section. In addition to the case here reported, I have operated upon several cases with a systolic pressure above 200 and I have grown to believe that the height of the blood pressure does not contraindicate root section for trigeminal neuralgia major (tic douloureux) so long as this delicate, dangerous, and sometimes tedious operation can be done under a local anesthetic as exemplified by the following case:

#### REPORT OF CASE

Case 1. Mrs. E. Z., aged 64 years, was referred to me in November, 1928, by Dr. A. E. Greer, of Houston, Texas, for an extremely severe case of trigeminal neuralgia major, involving the lower division on the left side. Every palliative measure had been tried without lasting relief and the patient had resolved to have nothing less than a permanent cure. She was 4 feet, 9 inches tall, normal weight 225 pounds but now 160. Palpitation, shortness of breath and dizziness for at least four years, and had a right-sided paralysis (apoplectic) six years ago with recovery in three months.

The spasms of pain recurred at about four-minute intervals and were most severe. The slightest movement of face, tongue, jaws, or any attempt to swallow, provoked a spasm, and for the past three months sleep had been impossible except with an opiate.

A complete neurologic examination revealed no signs of organic disease within the cranium. Diagnosis, tic douloureux, left side, third division.

A chest examination by Dr. Kinsella revealed a low systolic murmur maximal in the third space to the left of the sternum and transmitted to the axilla but heard also in the aortic area. Cardiac dullness extended 12 cm. to the left of the midline in the fourth space. The electrocardiographic diagnosis was left ventricular preponderance with myocarditis. The systolic blood pressure was 250, the diastolic 115. Urinalysis showed sp. gr. 1012, albumen faint trace, no sugar, many granular casts. N. P. N. 30, P. S. P. 35 per cent and 25 per cent.

Operation November 6, 1928. One hour before operation the patient was given a No. 2 H.M.C. tablet hypodermically. Patient sat up during the entire operation.

The line of the incision reached from just below the zygoma, 1.5 cm. in front of the ear, upward and a little backward for three inches. The tissues along this line were infiltrated with one-half per cent novocaine. Just above the zygoma the tissues in front and behind this line, for one inch, were also infiltrated and 5 c.c. of the solution was injected close to the point of exit of the third division of the fifth nerve outside of the skull.

The incision was made, severing skin and fascia temporalis, exposing temporal muscle. Good hemostasis. Temporal fascia freed from the zygoma for about 2 cm. in front of and behind the incision. Lower border of the temporal muscle was exposed. Good retraction of the edges was made and the lower one-third fibers of the temporal muscle were separated from their origin. The periosteum and the muscle were drawn forward exposing the lower



anterior part of the squama. This was drilled and the opening enlarged with the burr to about 3 cm. diameter. The dura was elevated from the base, the middle meningeal artery was ligated and cut, the ganglion was exposed, the dura reflected backward and upward from it. The cave of Meckel was opened and the fibers of the sensory root exposed along their attachment to the crescentic border of the ganglion. All but about the upper third of fibers were severed close to the ganglion. The motor root was identified and not cut. The wound was closed without drainage. Time, one hour and thirty-five minutes.

The patient made no complaint at any time and took water occasionally. She bore the operation quite well and healed normally. She was allowed to get up on the fifth day and to go about on the tenth day but not allowed to take much exercise. She left the hospital on the twenty-third day.

A letter from Dr. Greer dated November 18, 1929, in response to my follow-up inquiry, stated that the patient has had no return of her pain and that except for hypertension she is quite well.

It seems to me that such a case as this could not be given a general anesthetic with much hope of success. With local anesthesia I accepted the risk without any misgivings and operated, cutting the lower half of the fibers of the sensory root and leaving the remaining sensory fibers as well as the motor root undisturbed. She is thus permanently cured of her neuralgia without any likelihood of the unpleasant sequelae, namely, impairment of vision or wasting of the muscles of mastication.

What was once considered one of the most terrific operations in the whole realm of surgery has now become almost a minor procedure, thanks to local anesthesia.

St. Mary's Hospital.

Note. Dr. Coughlin wrote this article in January, 1930, and submitted it at that time for publication but circumstances prevented its appearance in *THE JOURNAL*. We make this explanation so that any statements which might not seem appropriate to current thought on local anesthesia will be understood by the reader. Ed.

## STRUCTURAL CHANGES IN THE KIDNEYS IN HYPERTENSION AND GLOMERULONEPHRITIS\*

FREDERICK C. NARR, M.D.

KANSAS CITY, MO.

For years clinicians have argued whether hypertension was due to nephritis or arteriosclerosis, or whether nephritis or arteriosclerosis was due to hypertension. While there are many unanswered questions, it appears quite definite that (1) there is arteriosclerosis not due to nephritis and not associated with hypertension. This sclerosis is found mainly in the larger vessels and comes

in the course of aging, diabetes, etc., and (2) that there is a condition known as essential hypertension which produces generalized sclerosis of the smaller vessels (arteriolar sclerosis), affecting particularly the vessels of the kidney, and (3) that subacute and chronic glomerulonephritis produces hypertension and arteriolar sclerosis.

It is evident then that essential hypertension and subacute and chronic glomerulonephritis when present a sufficient length of time will produce high blood pressure, arteriolar sclerosis and evidence of kidney damage.

The function of the kidney is to eliminate water, salt and nitrogenous waste material. This function is carried on by the glomeruli which consist of a capillary bed suspended in the space of Bowman. As the blood passes through these capillaries the materials mentioned are filtered from it. Any condition which decreases the efficiency of the filter or destroys it lowers the efficiency of the kidney. If a sufficient number of glomeruli are destroyed the kidney is unable to carry on its allotted function and uremia results.

Essential hypertension is of unknown etiology; it must be differentiated from the hypertension of nephritis. Hypertension which has existed for some time practically always produces sclerosis of the smaller vessels of the body, mainly those of the brain, heart, retinae and kidneys. O'Hare has shown that the retinal vessels are practically always sclerotic in sclerosis associated with hypertension, and seldom evident in sclerosis without hypertension. Pathologists have noted the almost constant sclerosis of the arterioles of the kidney in hypertension cases that come to autopsy.

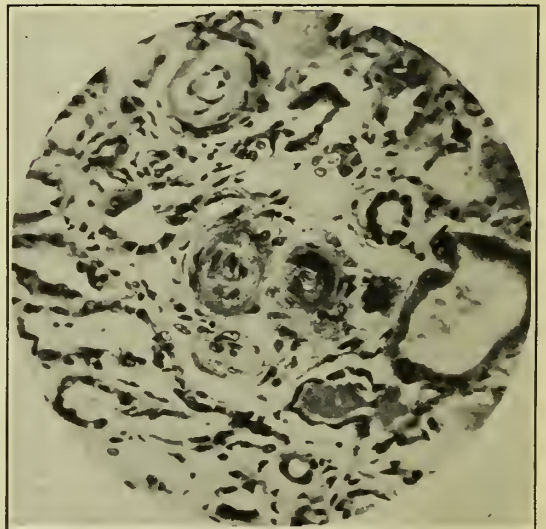


Fig. 1. Arterioles in malignant hypertension with almost complete obliteration of the lumina.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

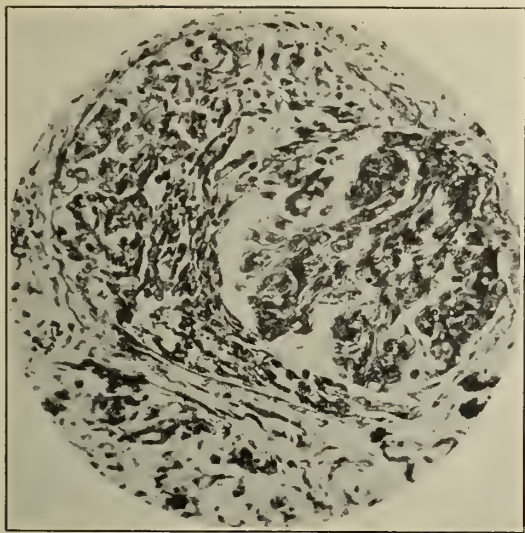


Fig. 2. Epithelial crescent seen in subacute glomerulonephritis.

When such arteriolar sclerosis is present the glomeruli atrophy or become entirely hyalinized. At this point it is well to emphasize that the vessels which supply the tubules are a continuation of the afferent vessel of the glomerulus and when the glomerulus is destroyed the tubule is also destroyed because of lack of blood supply. The destroyed tubule is often partially replaced by fibrous tissue with the resultant so-called "chronic interstitial nephritis."

#### MALIGNANT PHASE OF ESSENTIAL HYPERTENSION OR MALIGNANT HYPERTENSION

While it is true that there is definite glo-

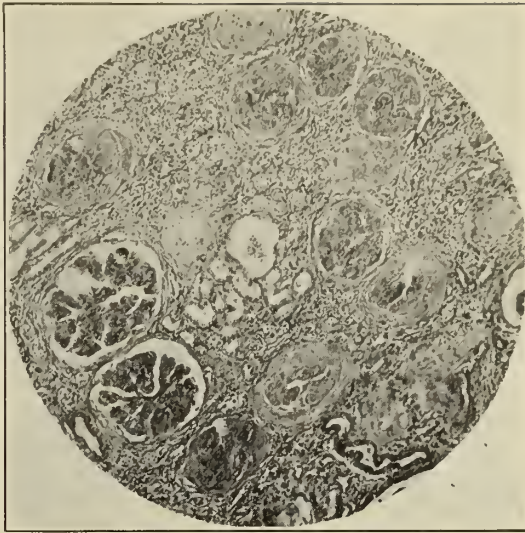


Fig. 4. Advanced stage of glomerulonephritis showing chronic inflammatory changes, particularly thickening of Bowman's capsule; adhesions of glomeruli to capsule; necrosis of glomeruli and disappearance of tubules with replacement by fibrous tissue in chronic glomerulonephritis.

merular damage in essential hypertension, the great majority of such cases never develop kidney insufficiency; that is, the kidney does not lose its ability to excrete the required quantity of waste material. In the 420 cases of death in essential hypertension analyzed by Clawson and Bell 60.4 per cent died a cardiac death and 8.6 per cent died of kidney insufficiency. No doubt many of these cases belonged to the malignant hypertensive group. In this condition, in addition to the arteriolar sclerosis, one sees endarteritis, necrotizing arteriolitis and glomerulitis. Inflammatory changes are also seen in the glomeruli but they

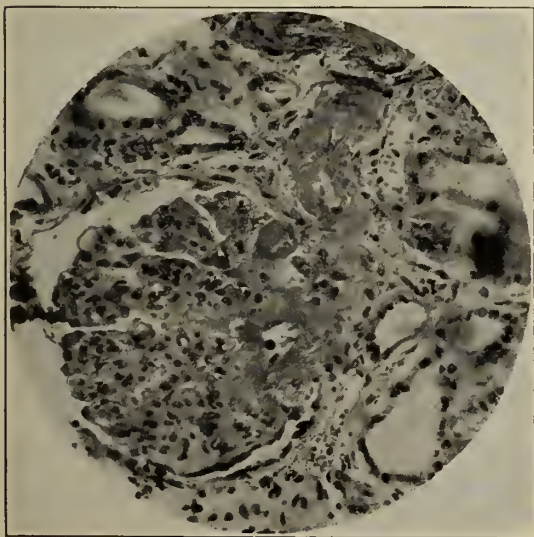


Fig. 3. Necrosis of the capillary bed of glomerulus and necrosis of the afferent glomerular vessel in malignant hypertension.

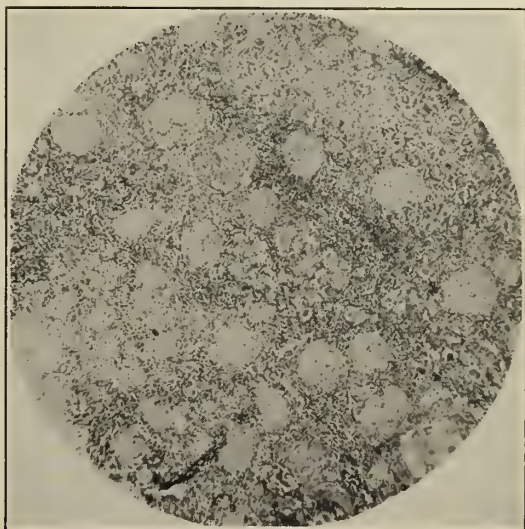


Fig. 5. Marked atrophy of kidney in advanced arteriosclerosis. Sclerosis and hyalinization of glomeruli, disappearance of tubules and fibrous tissue replacement.



are usually mild and not widespread. The presence of such inflammatory changes in the glomeruli led Volhard and Fahr to coin the term "combination form." They believed there was chronic glomerulonephritis superimposed on the kidney of essential hypertension. It is now believed that these glomerular changes which simulate inflammatory changes are the result of the rapidly diminished blood supply and are not inflammatory in origin. The necrosis of the glomeruli may be so rapid that the clinical picture is that of a rapidly progressive kidney insufficiency with retinal disturbance, hemorrhage and exudation,—the "snow bank" retina.

Acute glomerulonephritis, so far as known, is not due to bacterial invasion of the kidney but is in the nature of a reaction on the part of the glomeruli to an infection in some other part of the body. There have been a few successful attempts to produce the disease in animals. It has been accomplished by the injection of scarlet fever toxins into animals made sensitive to the toxin and by the injection of tuberculin into the renal artery in pigs made sensitive to tuberculin.

In 411 cases of acute glomerulonephritis analyzed by Fishberg, 133 cases were due to sore throat, 52 to scarlet fever, 33 to pneumonia, 40 to skin infections, 15 to epidemic measles, 65 to miscellaneous infection, and 73 of unknown etiology. Cold is a predisposing factor in some unknown way.

The first lesions appear in the glomerular capillaries and consist of proliferation and swelling of the endothelium, absence of blood in the glomerular vascular bed, coagulated exudate, slight exudate of polynuclear cells and hemorrhage. In the subacute stage there is proliferation of the epithelium of the glomerular tuft and of the epithelium lining Bowman's capsule. Later, marked thickening of the capillary membrane may occur.

In the acute stage hypertension is not present but such cases have generalized edema and a large amount of albumin, blood and casts in the urine.

If the glomerular lesions are not too widespread or too severe and the primary infection is removed the patient may return to health, or he may pass into the stage of subacute or chronic glomerulonephritis. It must be remembered that we possess in the neighborhood of five million glomeruli and less than two and one-half million are compatible with health. Chronic glomerulonephritis may therefore be a sequel to an attack of acute glomerulonephritis or may be the result of frequent insults to the kidney; as Emerson puts it, "the patient does not suffer from one attack of nephritis but from a thousand and one."

The arteriolar changes are those seen in hypertension, which is present. The glomerular changes vary from the initial acute changes to complete hyalinization or fibrosis. The tubules show the degenerative changes due to diminished blood supply and there are the secondary fibrous tissue replacement findings.

#### CONCLUSION

1. Whether we start with essential hypertension or glomerulonephritis, arteriolar changes in the kidney are found.

2. Essential hypertension seldom produces kidney insufficiency.

3. Malignant hypertension frequently progresses to kidney insufficiency.

4. Acute glomerulonephritis may go on to clinical recovery or be followed by chronic glomerulonephritis.

5. Chronic glomerulonephritis may be a sequel to acute glomerulonephritis or may be the result of repeated kidney insults over a long period of time. If enough glomeruli are destroyed by one acute attack or by repeated attacks kidney insufficiency develops.

Research Hospital.

#### DISCUSSION

DR. R. LEE HOFFMANN, Kansas City: This paper on the surgical procedure in patients with hypertension who have had renal changes indicative of advanced sclerosis, opens a field of extreme interest. Knowing the kidney function is divided between the two kidneys, both of which are bound to be involved by the sclerosis, the surgical procedure should receive a good deal of thought if it is going to improve the kidney function. An operation for the removal of a renal tumor, a cyst or a calculus, which may necessitate the removal of the entire kidney thereby jeopardizing the patient's chances for recovery, should be approached with a good deal of caution. Hypertension with sclerosis has a certain amount of renal sclerosis which should be a contraindication of surgery of any sort.

## TOXIC GOITER: EARLY SYMPTOMS, DIAGNOSIS AND TREATMENT

WITH SPECIAL REFERENCE TO THE CARDIAC FACTOR\*<sup>1</sup>

THEO. H. HANSER, M.D.

ST. LOUIS

Anticipating that the presentation of so trite a subject might be considered fraught with the repetition of innumerable well known facts, it was thought best to qualify the title at the start. In doing so we believed it advisable to base the subtitle on the most important feature in the context of the paper. Accordingly, we present the subject of toxic goiter, or preferably thyrotoxicosis, and heart disease with a

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. From the service of Dr. Herm. A. Hanser, Lutheran Hospital, St. Louis.



consideration of some of the more important but often unrecognized phases of this relationship.

We shall not endeavor to consider in any detail the more extreme or obvious forms of toxic goiter either on the basis of uniform general hyperplastic enlargement of the thyroid gland, commonly called exophthalmic goiter, or on the basis of the asymmetrical, nodular, adenomatous enlargement of the thyroid gland, commonly called toxic adenoma. The classical and striking form of so-called Graves' disease, better termed Parry's disease, is too well known. The youth with an acute overwhelming intoxication of rather sudden onset, in a more or less constant state of agitation, with exophthalmus and flushed face, and symmetrical throbbing fullness of the neck, presents a clear picture. Equally well defined may be the one presented by the middle-aged person with a moderately enlarged asymmetrical nodular gland of years' duration, with less striking though definite signs of thyroid intoxication, such as nervousness, tremulousness, and so forth. These two forms in the great majority of cases are clear-cut and need no special comment as to diagnosis.

It is our primary object to discuss and consider those forms which theoretically may be classified in either of these groups, but on account of their varied symptomatology, especially in middle-aged people, may be less well defined in their clinical manifestations and therefore escape detection in their early stages. We shall consider these primarily from the clinical and not from the pathological standpoint. We do this believing with Heyd, of New York,<sup>1</sup> that in so far as clinical diagnosis and treatment are concerned, "it is immaterial whether one adopts the idea held by some that all goiters are varying phases of one continuous process, or whether one adopts the other opinion that there are distinct subdivisions in the pathological classification of goiter."

Despite the fact that for many years the greatest interest in thyroid disease has centered about the study of the underlying pathology, there still exists considerable confusion in the conception of the pathology of a given presenting group of clinical symptoms. Rienhoff's<sup>2</sup> recent studies alone stand out as monumental in helping to clear up the confusion that prevails concerning the pathogenesis of "toxic goiter."

From the clinical standpoint, only very recently has the problem been attacked with any degree of effort. This, no doubt, has been due primarily to the advent of the extensive use of iodine in the treatment of thyrotoxicosis. With it there has resulted a great stimulation of our clinical interest and greater appreciation

of the clinical side of this disease. It has led to a more careful study of the clinical manifestations of the disease in contrast to the pathological; it has led us to think and speak more of thyrotoxicosis than of goiter. This widening of our clinical concept of thyrotoxicosis has brought an increased number of earlier diagnoses and the establishment of a symptom-complexes erroneously ascribed to other disease entities.

ascribed to other disease entities.

The most important group of these is the one found in patients with cardiac disorders on the basis of unsuspected but later proved thyrotoxicosis. This class of patients although a small one, relatively speaking, is more and more found to be a very important group in that it claims the highest mortality of all classes of thyroid disease, and yet adequate treatment may result in the complete rehabilitation of the patients.

We do not have reference here to patients with obvious thyrotoxicosis presenting associated and striking tachycardia. We have in mind for our consideration only those patients who primarily present themselves for the relief of cardiac disorders. Their symptoms and signs of obvious cardiac disease, with or without congestive failure, may be so striking that the underlying thyrotoxicosis lurking in the background is entirely overlooked. They may present themselves with signs of established or paroxysmal auricular fibrillation, auricular flutter, or angina pectoris as the chief forms. It may be assumed that these signs are entirely on the basis of arteriosclerotic or other forms of primary heart disease, while in fact the underlying disturbance may be a well established thyrotoxicosis.

The majority of these patients are middle-aged or beyond who already may have general visceral damage aside from the superimposed thyrotoxicosis. Accordingly, they may be poor surgical risks despite the fact that they are suffering from an unsuspected and therefore wrongly believed mild form of thyrotoxicosis, only to have them succumb to the surgical procedure so confidently resorted to. This is not to say that they are to be deprived of surgery, for in it actually lies their best and only beneficial treatment, even in the presence of severe congestive failure. They may show little or no clinical thyroid enlargement, with evidence of only moderate but always definite weight loss, and with definite clinical and laboratory evidence of sustained increase in basal metabolism of approximately 30 to 40 plus, only occasionally attaining the high rate of Graves' disease of youth.

We personally became interested in this group in 1924 when opportunity presented it-

self for the observation of thyroid disease from the thyroid standpoint, and cardiac disease from the cardiac standpoint, in a large group of patients.

Occasionally a patient was seen at that time with a cardiac disorder which was interpreted on the basis of "myocarditis" of either arteriosclerotic or hypertensive origin, with the realization, however, that such a pathological diagnosis did not entirely explain the presenting group of clinical symptoms. A year later one of these patients returned with the same symptomatology but more pronounced and with an obvious associated and underlying thyrotoxicosis. Treatment with iodine and surgery entirely removed all old symptoms and signs of cardiovascular disturbance and the associated thyrotoxicosis, completely rehabilitating the patient.

Since 1924 we have followed with interest the observations and reports of this group of patients by clinicians who have an opportunity of seeing a large number of thyroid and cardiac patients. We have in mind especially the keen analytical reports from the Lahey Clinic, by Lahey,<sup>3,4</sup> Hamilton,<sup>4,5</sup> and Hurxthal,<sup>6</sup> and the writings of Levine,<sup>7,8</sup> Sturgis,<sup>7</sup> and Walker,<sup>8</sup> of the Peter Bent Brigham Hospital, Boston.

Lahey recently discussed this group of patients, emphasizing the important points in diagnosis and the striking results from adequate medical and surgical treatment. Eighty-five per cent of this group had established auricular fibrillation, with or without congestive failure. The smaller percentage presented themselves with other forms of cardiac disorders. Richter, of Chicago, reported the incidence of 55 advanced cardiac cases in 1000 thyroidectomies. The incident in the Percy Clinic in Chicago was as high as twenty-eight per cent. Heyd, of New York, reports twenty-one per cent coming under observation for cardiovascular disability rather than for the less obvious thyrotoxicosis.

Our study is a modest comparison of this group of patients encountered in a limited but varied private surgical practice. It seeks to compare this group found at large in the community with the group congregated in the haven of the large thyroid clinics. Of 3600 private patients with all types of diseases submitted to complete clinical and laboratory examination, 142 were found to be suffering with thyrotoxicosis in varying degrees of severity and treatment was carried out accordingly. Of these, 24 fell into the group with cardiac symptoms predominating; 4 came under observation with established auricular fibrillation, 2 of these with severe congestive failure and 2 with moderate congestive failure; 1 with numerous

extrasystoles aggravated by exercise and at times followed by attacks of paroxysmal tachycardia.

The age incidence was approximately fifty years or older. They all showed hypertension averaging between 175 and 185, with several as high as 200 millimeters of mercury. In all the 24, evidence of thyroid disease was less obvious both subjectively and objectively except for certain minor but definite characteristics indicative of sustained increased metabolism.

In the cases with severe cardiac disorder the chief complaints were those referable to congestive failure. In those with mild cardiac disorders the complaints were restlessness, tiredness, nervousness, unproductive cough, periodic attacks of fluttering and thumping in chest, at times with precordial pain of definite anginal type. In both, the minor features of thyrotoxicosis were evidenced chiefly in diffuse flush of face, neck and upper part of chest, pigmentation, moderate weight loss, warm and sweaty skin, slight or moderate degree of agitation, little or no enlargement of thyroid gland, symmetrical or asymmetrical, no exophthalmus but at times a slight widening of palpebral fissure. Most of them had been given some form of cardiac therapy, such as digitalis, morphine, and so forth, with little or no improvement.

It is, of course, common knowledge that the cardiac element in the symptomatology of thyrotoxicosis is an essential feature. Only recently, however, have scholarly clinicians emphasized the fact that this cardiac element may be the predominating one, and so much so that the other symptoms of thyrotoxicosis are entirely overlooked. In considering the diagnosis of thyrotoxicosis underlying a mild or striking cardiac disorder, it is first essential to keep in mind the possibility of this relationship.

With the stress and strain of present-day life cardiologists and statisticians of life insurance companies have recently shown that cardiac disease is definitely on the increase. There is evidence to show that this is also true of thyroid disease. It may be said that both are diseases of civilization. It is very logical to conclude that a certain percentage of this increase in cardiac disease may be on the basis of an increase in thyroid disease. If this is true, then a certain per cent of the cardiac patients may be removed from the cardiac group and placed in the thyroid group and with adequate treatment should result in a lowering of the morbidity and the mortality rate of both.

If we are to recognize the thyrotoxicosis in these patients we must not expect to find the striking symptoms and signs of obvious thy-



TABLE 1

A. F.—Auricular fibrillation.		Cardiac	Status	Blood	Digit-	Basal Meta-	Days in		Associated
Case and Sex	Age	Preoperative	Postoperative	Pressure	alis	bolic Rate	Hospita	Result	Symptoms
1. L. M. woman	40	A. F. Severe congestive failure	A. F. persisted	160/90	+	+42	42	Recovery. Sudden death at home 6 months later. Embolus. A. F. persisted	None
2. E. E. woman	60	A. F. Severe congestive failure	A. F.	160/100	+	+68	44	Recovery. Still fibrillating on digitalis	None
3. J. B. man	62	A. F. Moderate congestive failure	A. F. 10 days	190/100	+	+48	24	Recovery. Digitalis	None
4. A. H. woman	57	Extrasystole; paroxysmal tachycardia	A. F. Few days	150/100	0	+42	17	Recovery	Joint pains
5. A. B. woman	62	A. F. Moderate congestive failure	A. F.	190/100	0	+54	46 14	Spontaneous cessation of fibrillation at home	Cough
6. E. C. woman	63	Regular	A. F. 4 days	170/90	0	+60	28	Recovery	Marked joint disturbance
7. L. E. woman	52	Regular	A. F. 2 days	160/80	0	+52	21	Good, but occasional paroxysmal tachycardia	None
8. E. B. woman	52	Regular	A. F. 5 days	180/100	0	+54	34	Recovery	Joint symptoms
9. C. P. woman	42	Regular	Regular	160/100	0	+45	39	Recovery	Cough. Sugar
10. J. C. woman	54	Regular	Regular	170/80	0	+52	27	Recovery	Cough
11. C. F. woman	41	Regular	A. F.	150/90	+	+44	18	Incapacitated from cardiac failure. Mitral stenosis	None
12. V. M. woman	54	Regular	Regular	154/90	0	+54	18	Recovery	Cough
13. C. L. woman	70	Regular. Moderate failure	A. F. 2 days	180/100	0	+60	28	Recovery	Cough. Sugar
14. E. C. woman	64	Regular	A. F. 9 days	170/100	+	+53	9	Death	Cough
15. E. G. woman	68	Regular	Regular	190/100	0	+76	28	Recovery	Joint
16. N. S. woman	51	Regular	Regular	190/100	0	+41	16	Recovery	Headaches. Vertigo
17. C. P. woman	56	Regular	Regular	160/90	0	+38	21	Recovery	Joint
18. G. R. woman	49	Regular	Regular. Tetany 5 days	150/90	0	+48	19	Recovery	Joint
19. L. G. woman	63	Regular	A. F. 2 days	170/100	0	+58	15	Recovery	None
20. E. C. woman	54	Regular	Regular	170/100	0	+42	12	Recovery	None
21. J. B. man	62	Regular	A. F.	155/80	0	+51	15	Death	None
22. E. F. woman	51	Regular. Occasional extrasystole	A. F. 5 days	160/100	0	+48	21	Recovery	Joint
23. M. P. woman	53	Regular	Regular	180/100	0	+51	20	Recovery	Joint
24. T. G. man	48	Regular	Regular	150/90	0	+46	17	Recovery	Cough

roid disease but must look for the minor features of the disease previously enumerated.

#### TREATMENT

Treatment at all times is directed at the underlying thyrotoxicosis. Hospitalization as soon as possible is imperative. Medication, consisting of five to thirty drops of Lugol's solution once daily, or as little as one drop, or six milligrams of iodine, may be used once daily and cause as great and rapid a drop in the basal metabolic rate as is caused by larger doses, according to the work of Thompson et al,<sup>9</sup> of Boston. Lugol's is given whether thyrotoxicosis is on the basis of general hyperplasia of the thyroid gland or on the basis of asymmetrical nodular enlargement.

We do not believe that it is contraindicated in the so-called toxic adenomas, as some have reported. Our findings have been those of Youmans and Kampmeier<sup>10</sup> who have shown that patients with "toxic adenoma," previously untreated with iodine, respond to its use in es-

entially the same way as patients with "exophthalmic goiter."

In addition, sedatives are given in the form of luminal, one-half to one grain three to four times daily. Furthermore, bed rest and high caloric diet, digitalis only when congestive failure or tachycardia, usually of the auricular fibrillation type, persists despite prolonged Lugol's and rest.

The average preoperative stay in the hospital is approximately one to two weeks. In this period of time, or sooner, we usually find sufficient reduction in the basal metabolic rate to the extent of fifty per cent of the original, which is considered adequate to have the patient submitted to surgery. Thyroidectomy is then done in one or two stages, depending on the patient's condition. With the advent of Lugol's ligation has been almost entirely dispensed with.

The technic of thyroid surgery today has been perfected to such a degree that surgical complications, such as recurrent laryngeal in-

juries and severe hemorrhages, should be very rare.

An abstract is appended of two case histories of patients who presented themselves with cardiac symptoms and signs entirely on the basis of thyrotoxicosis. The first case is one with severe cardiac disorder with congestive failure; the second is one with mild but distressing cardiac disorder without any failure.

#### REPORT OF CASES

Case 1. (No. 1 in table 1.) Mrs. L. M., aged 40, entered the hospital complaining of swelling of ankles, pain in lower part of abdomen, shortness of breath when climbing stairs, and at times when lying in bed, loss of weight and, later, increase in weight (edema), rapid heart rate.

*Present Illness.*—Onset nine months before entering hospital. Dyspnea on exertion, some cough, but no edema until two months prior to entry. Previous to present illness in good health, no dyspnea, no edema, no evidence of decreased cardiac reserve. Worked steadily on farm and in addition carried on housework. About two months before entry, was gradually partially incapacitated. At time of hospitalization was completely incapacitated with symptoms enumerated. Loss of weight from 135 to 115 pounds within five months but regained this. Part of the weight regained at the time of entry was apparently due to fluid.

*Past History.*—General health always good. Never acutely ill except with measles in childhood. No history of rheumatic fever except for mild attack of rheumatism in right shoulder ten years ago. No frequent sore throats. No "growing pains."

*Marital History.*—Married nineteen years. One child living and well at seventeen. Pregnancy normal. Delivery spontaneous. Apparently no cardiac difficulties. Confined to bed five days, then up and about. One month later had diagnosis of "womb trouble and fever." No further pregnancy.

*Family History.*—Father living and well at sixty-four. Mother living and well. Two brothers living and well. Four sisters living and well. One sister died of pneumonia. No history of heart disease.

*Examination.*—Well developed and well nourished. In bed with head rest well up. Moderate cyanosis, dyspnea and orthopnea. Considerable edema of feet, legs and over sacrum. Vessels of neck pulsating prominently, especially the right external jugular. Thyroid is asymmetrically enlarged with distinctly large nodule palpable, about the size of a small plum. No thrill or bruit.

*Head.*—Neck normal except for reddish hue to skin of neck. No exophthalmus; slight suggestion of stare. Ears and nose normal. Throat normal.

*Chest.*—Diffuse acne and pyoderma over back and front of chest. Heart enlarged thirteen centimeters to left of midsternal line and three centimeters to the right in fifth interspace, fibrillating at the rate of 132 at apex and 100 at radial. Low pitched systolic murmur at apex; no diastolic. Poor excursion of diaphragm. Rales in both bases. No fluid.

*Abdomen.*—Skin warm and moist over body. Liver approximately four fingers' breadth below costal margin. Definite fluid wave.

Edema of extremities.

*Course in Hospital.*—From September 11 to September 17 patient was digitalized; grain and a half of the leaf was given for every ten pounds of body weight. Kidneys functioned well and in general

patient was improved but heart rate remained rapid at 120 at apex with a pulse deficit of 20 at wrist.

From September 18 to September 23 digitalization and bed rest continued with little improvement. Heart rate remained rapid—between 112 and 120. Several determinations of basal metabolic rate taken. Respiration satisfactory to obtain accurate reading. Basal metabolic rate + 45.

From September 23 to October 2 digitalis was discontinued and patient put on compound solution of iodine (Lugol's) fifteen drops three times daily. In five days the heart rate had dropped to approximately 100. In ten days it had dropped to between 80 and 90 but still in fibrillation. In general, improvement was striking. Still some evidence of failure, however, as shown by rales in bases, fluid in abdomen and edema of extremities. On October 1 basal metabolic rate had dropped to + 15. On October 2 subtotal thyroidectomy was done and wound left wide open with secondary closure done on October 7. Twenty-four hours following thyroidectomy pulse was around 120, irregular but good quality. No digitalis given but Lugol's continued. October 7 pulse was around 90. October 14 general condition excellent. Allowed to be up in chair and to walk a few steps. October 17 discharged with some dyspnea, no rales in bases, no fluid in abdomen, liver still palpable below costal margin, fully three fingers' breadth. Some edema of extremities. Weight 118.

*Course After Discharge.*—Patient was seen at her home on several occasions. Found to be up and about and able to do part of housework. Still evidence of some edema of extremities. No demonstrable fluid in abdomen. Some dyspnea. No orthopnea. Two small pillows under head at night. Lugol's continued. No digitalis since September 23.

Three months later was entirely free of all edema. Heart rate slow (89 and 90), irregular. Doing greater part of housework. Lugol's had been discontinued for five weeks. Still rather weak requiring some bed rest during the day. Carried on housework up to time of her sudden death which was apparently due to pulmonary embolus (mural thrombus) six months after discharge from hospital.

#### COMMENT

This patient illustrates the severe type of cardiac failure due to thyrotoxicosis developing over a period of nine months. On entry she was thought to be suffering from primary heart disease and thyrotoxicosis was entirely overlooked. Accordingly, treatment with digitalis was instituted first. Moderate improvement was noted over a period of two weeks. Heart rate, however, persisted at 120. Digitalis then discontinued and compound solution of iodine given. Marked improvement in condition with thyroidectomy later resulting in almost complete rehabilitation. It may be assumed that early diagnosis in this case probably would have prevented the untoward outcome.

Case 2. (No. 4 in table 1.) Mrs. A. H., aged 57. This patient had a nodular lobe of thyroid gland removed in 1916; it was nontoxic. Following that operation patient was not seen again until February 10, 1926, when she came under observation with symptoms of palpitation, lack of endurance and



restlessness at night. Attacks of palpitation frequently awakened her at night. Some weight loss.

**Examination.**—No exophthalmus. Skin of neck shows reddish pigmentation and flush. Skin warm and moist over body. No striking enlargement of remaining portion of thyroid gland. A firm mass is palpable in midline in sternal notch and to left. No thrill or bruit. Heart  $8\frac{1}{2}$  centimeters from mid-sternal line. Rate regular at 90 then showers of extrasystoles with rate suddenly going up to 120, causing considerable subjective reaction. Blood pressure 150/80.

During tachycardia has dull feeling in the epigastrium which comes up substernally. With this there is a feeling of lump in throat. Sensation of quivering all over chest. Rapid rate maintained for about five minutes, then again showers of extrasystoles and rate spontaneously back to 90.

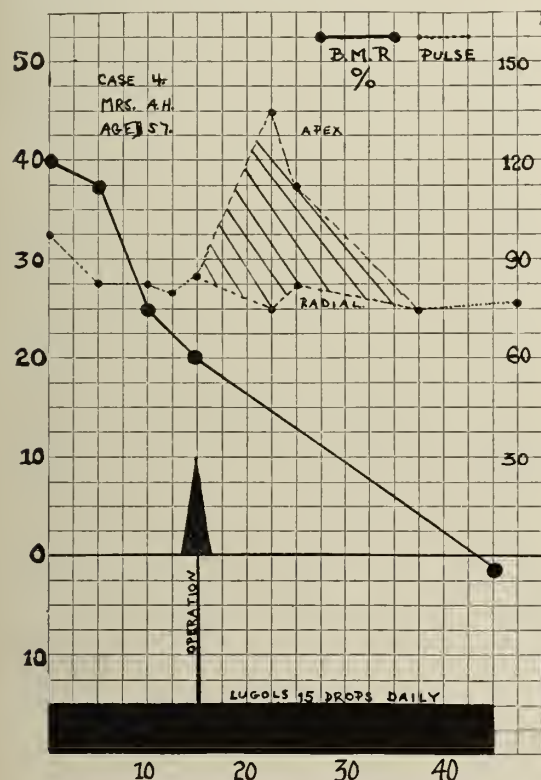


Fig. 1 Case 2. (No. 4 in table 1.) Illustrates typical course of patient presenting herself with cardiac disease on the basis of thyrotoxicosis.

Electrocardiogram (not during an attack) was normal. Basal metabolic rate +40 (see graph). Marked improvement on Lugol's.

Digitalis prior to entry into hospital aggravated symptoms. Sedatives brought considerable improvement in condition but did not remove symptoms. Symptomatically, no decrease in cardiac reserve.

**Operation.**—Thyroidectomy done after two weeks on Lugol's. Completely well since then. One year later had cholecystectomy for cholelithiasis. In good health to date.

#### SUMMARY

The study seeks to emphasize the importance of the thyroid disease in its relation to heart disease. It seeks to call attention to the fact that

the thyroid disease underlying the heart disturbance may be entirely overlooked. The severest forms of congestive failure may be precipitated by it. However, no matter how severe this failure is, careful medical and surgical treatment directed to the underlying thyrotoxicosis offers the patient the best possibility of being completely rehabilitated.

Unsuspected, but later proved, thyrotoxicosis to the extent of a basal metabolic rate of plus 40 in middle-aged persons, may be the underlying cause of a mild form of cardiac disorder in one patient, while in another it may be the exciting cause of severe congestive failure. The former, however, as a rule is the greater surgical risk because the severity of the thyrotoxicosis may be underestimated on the basis of the mild symptoms, and surgical procedure instituted too soon or on too great a scale. The latter patient, with the severe cardiac disorder, may erroneously be looked upon as an extremely poor surgical risk and surgical treatment delayed for too long a time or not instituted at all. This, of course, is withholding the only treatment that will avail anything in this condition.

Treatment at all times is directed primarily at the underlying thyrotoxicosis and not at the cardiac condition. It consists in bed rest, Lugol's over a definite period of time, at least ten days, and digitalis only when congestive failure or tachycardia, usually of the auricular fibrillation type, persists despite prolonged Lugol's and rest.

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#### DISCUSSION

DR. SINCLAIR LUTON, St. Louis: I was glad Dr. Hansen brought out the point that these cases need treatment directed toward the thyrotoxicosis and not



treatment directed, for any length of time, toward the rapid heart or even the auricular fibrillation. Surgeons particularly often complain that these cases have been treated for one, two or three years with sedatives, digitalis and similar drugs. The cases that are recognized should not be given medical treatment, so-called, for very long because the result will not be satisfactory, and particularly so with digitalis continued over a long period.

DR. J. W. THOMPSON, JR., St. Louis: This very scholarly and accurate presentation of a distinct group of cases Dr. Hanser has made in an able manner. Speaking as a surgeon, familiar with extremely toxic goiter cases, I want to emphasize the practical point touched upon by Dr. Luton, that it is very unwise to temporize by treating any patient who has these mild symptoms as they are only in the foreground of a thyrotoxicosis. The patient may improve under digitalis and sedatives or Lugol's solution but just because of that improvement we should not be deceived. Such improvement is an indication for immediate operation and not for further temporization.

## OBESITY; ITS CLASSIFICATION AND MANAGEMENT\*

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Within the past few years much has been written on the subject of obesity and its dangers. We have been taught that obesity is a menace to health; that obese individuals generally acquire diabetes and hypertension and that their life span is shorter than that of individuals of normal weight. As a consequence of such propaganda, innumerable diet schemes have flooded the market without any consideration being given to the etiology of the obesity. It was this thought that prompted us to discuss the subject of obesity.

Obesity can be divided into two main groups, namely, (1) an alimentary or exogenous type, and (2) an endocrine or endogenous type including a familial or constitutional type and a localized type, the lipomatosis of Von Bergmann. In both forms there is an excess of food intake over energy expenditure in an otherwise apparently healthy individual.

In the exogenous type the obesity is dependent upon the composition of the diet. Normally, the combustion is more rapid after protein ingestion caused by the stimulative effect of the amino acids on the oxidative processes of the organism.<sup>1</sup> In the obese this so-called specific dynamic action of protein is lessened but there is also some abnormality of fat metabolism; as a consequence the fat is not utilized but stored. These individuals use protein and carbohydrate more readily than is normal and so the fat is not used.

Some investigators<sup>2</sup> believe that lowered specific dynamic action is associated with disturbance of function of the anterior lobe of the pituitary caused by increase in heat production after protein feeding. Lauter<sup>3</sup> found decreased heat production in obese individuals after protein therapy although he does not believe that the metabolism of oxygen consumption is of etiological consequence for endogenous obesity. Bauman and Hunt<sup>4</sup> noted that the specific dynamic action is influenced by certain endocrine glands, notably the thyroid and pituitary. Regardless of the above the lack of balance between ingestion of food and expenditure of energy was the prevailing cause of the fat storage. Newburgh and Johnston<sup>5</sup> believe that all types of obesity are due to overabundant inflow of energy and the excess is deposited as adipose tissue. In a careful study of a few cases they conclude that all types of obesity are dependent upon the composition of the diet. They carefully calculated the food and fluid intake and the nitrogen output in the urine and feces and determined precisely the weight of the body tissue oxidized to furnish that portion of energy given out but not contained in the diet. This was done by comparing total heat production and total nitrogen output with energy value and composition of the diet. By such a procedure they could determine the composition and amount of body tissue destroyed and so could predict the loss of weight for a given period.

In the endogenous type, however, there is a tendency to put on weight independent of the food intake or amount of exercise. Here, in addition to the faulty metabolism, there is a disturbance of water and salt balance. The disturbance in metabolism is often influenced by the glands of internal secretion, especially the thyroid, pituitary and occasionally the adrenal cortex, pancreas and genitals. A radical diet in this type is not a cure as the obesity returns if it is affected at all. Here the hormonal correlation between pars intermedia of the pituitary and the thyroid and occasionally the genitals with the metabolism center is disturbed.<sup>6</sup> In the pancreatic type or true diabetes the incidence of obesity is relatively high. Falta<sup>7</sup> thinks there is an assimilation of large amounts of food through the primary increased function of the islands of Langerhans. Later when the islands are deficient these patients are hungry for carbohydrates and have much thirst which leads to water retention.

Patients with hypothyroidism or myxedema are obese in spite of a poor appetite and a low caloric intake. The administration of thyroid or thyroxin to this type causes them to lose weight in spite of the fact that it increases their

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

appetite. In this type the obesity is universal with certain predilections, such as the mons veneris, hips, nates, thighs and breasts.

#### TYPES OF ENDOGENOUS OBESITY OF ENDOCRINE ORIGIN

Age incidence at which obesity occurs and the distribution of the adiposity are diagnostic aids of internal secretory disturbances. The age incidences are, (1) the infantile period, (2) the juvenile period, (3) the adult period.

The infant of thyroid insufficiency is overweight at birth, has eruption of the first teeth after seven months of age and begins walking and talking after the first year. These infants lose their weight before three years of age. If adipose after three years of age there is also an insufficiency of the hypophysis. They have deep set eyes, thick lips, lordosis, pot belly and skin and hair changes in addition to the thyroid insufficiency.<sup>8</sup>

In the juvenile form between the ages of five and fourteen the adiposity is due to an insufficiency of the pituitary (posterior lobe). These cases have a typical girdle, hip and shoulder adiposity and in the male small genitalia which appear as though imbedded in a cushion of fat that infiltrates the mons veneris. There is a tendency to mammary and mons adiposity and the body style is feminine. These children develop normally up to the age of four or five then become obese. They are alert, precocious and the mentality is good in contradistinction to those of the thyroid type who are dull mentally. The juvenile of insufficiency of the gonads is thin and has an overgrowth of long bones.

In the adult the obesity may be due to disorders of the pituitary, thyroid, gonadal, or of a combination of these. In the thyroid type there is evenly distributed adiposity,—dorsum, hand, foot and supraclavicular padding. The hair is dry, scanty and brittle and frequently streaked with gray; nails are brittle; teeth decay early; cornea is dull and listless and the patient shows marked apathy.

In the myxedema type the skin is thick, tense and the facies is characteristic. There is a pronounced supraclavicular fat pad.

In hypophyseal insufficiency we have a classical pelvic girdle obesity from the naval downward to the junction of the middle and lower third of the thigh; mammary adiposity, also adiposity of the deltoid or shoulder and around the malleoli and buttocks. In addition, there is much fat folding about the lower part of the thorax. In the adult male there is much subcutaneous fat—the feminine type with hypertrophy of the breasts. The external genitalia, penis, scrotum, testes, are poorly developed and the testes are often undescended.

In the female there are secondary sex characteristics, such as paucity of hair about the mons veneris, the beard and axillae, hypotrophy of the breasts and often a tendency to masculinism. There is a disposition to amenorrhea, dysmenorrhea and sterility. If it comes late in life, sex characteristics are not so pronounced. The fat is solid, compact and firm with no tendency toward water retention. The skin is smooth, the hair is scanty, incisor teeth poorly developed and the fingers are long and gracile. The carbohydrate tolerance is increased. In anterior lobe insufficiency with infantile genitalia there is slight adiposity in the mammary region (not as pronounced as in true primary gonadal insufficiency). The forearm, hand, leg, foot and cervical regions generally are free from fat. There is little mons veneris padding except in secondary hypogonadal conditions.

*Hypophyseal Cerebral Peripheral Obesity* (Zondek).—In this type there is retention of water and salt. Here the hips, thighs and mammae are adipose and the extremities are thin. Patients complain of symptoms referable to increased intracranial pressure on account of the increased amount of cerebrospinal fluid.

*Hypogonadal or Genital Type*.—This type—eunuchoid—if it develops before twenty-five years of age shows disproportion of the long bones caused by an inhibition of the ossifying centers. There is marked trochanteric adiposity, padding and fullness of thighs to the knees, with absence of fat in the mammae, cervical region, supraclavicular areas and distal extremities. The body is relatively short and the extremities are long. The span is greater than the height and the mandible is quite narrow. If it is a late castration or ovarian type, it assumes the trochanteric and pituitary type of fat distribution.

The typical gonadal adiposity is a panniculus adiposity. It is, however, rare before the age of thirty-four. If it occurs later in life it is as a rule polyglandular.

*Suprarenal Cortex (Hyperactivity) Adiposity*.—Skin is thick, fat and pigmented; there is excessive growth and distribution of hair; large stature, muscular system and external genitals well developed.

*Lipomatosis*.—Localized adiposity usually about the trochanters and lower extremities without generalized tendency. Probably caused by a disturbance of the peripheral nervous system; often familial or constitutional.

*Treatment*.—The treatment of obesity is dependent upon the type, determined by a careful physical examination. All cases are placed upon a calculated diet according to age, height, weight and type of body build of the individual



patient. The diet prescribed is below the maintenance requirement with food high in cellulose content to produce bulk, containing enough protein to keep the patient in nitrogen equilibrium, and carbohydrate and fat insufficient in calories to maintain body weight. This rule is flexible as it is frequently necessary to alter the protein and carbohydrate ration for a particular case. The dietary management follows:

1. Calculate the total number of calories necessary for the ideal weight of the patient.

2. Allow for the obese patient about one-half the number of determined calories.

3. Allow one gram protein per kg. of body weight.

3. Arrange fat and carbohydrate. (Keep ketogenic and antiketogenic ratio  $1\frac{1}{2}$  to 1.)

4. Slowly reduce fat but keep carbohydrate and protein stationary.

5. Keep fluid intake constant and under 1200 c.c. daily.

6. Alter diet as necessary for the welfare of the patient.

#### EXAMPLE

To cite a concrete example: Mrs. S., aged 34, height 64 inches, weight 214 pounds (97 kg.). Normal weight should be 132 pounds (60 kg.). Diet for normal weight should be:

Carbohydrates, 50 grams, 200 calories.

Protein, 60 grams, 240 calories.

Fat, 120 grams, 1080 calories.

Total, 1520 calories.

Diet for the above patient—calories 760 (one-half of 1520), as follows:

Carbohydrates, 50 grams, 200 calories.

Protein, 60 grams, 240 calories.

Fat, 36 grams, 324 calories.

Total, 764 calories.

Calories per kg., 7.8 or, 757 calories per day.

Necessary to maintain weight, 2425 calories per day.

Deficit, 1640 calories per day, or 17.2 calories per kg. of body weight.

If 1640 calories, or the deficit, were supplied from the fat, it would be equivalent to 185 grams of fat, or 224 grams of adipose tissue, or 3.2 pounds per week.

If the patient can be kept under careful observation, the exact amount of protein loss can be calculated by determining the daily heat loss and protein output. In this manner exact weight loss can be predicted.<sup>5</sup>

In addition to the dietary management the fluid intake should be limited to 1200 c.c. daily and should be kept constant. Moderate exercise should be faithfully carried out as it increases metabolism. Massage strengthens the

muscles but does not alter metabolism. Steam baths and hot salt baths (hypertonic) are effective in dehydrating.

If the obesity is associated with a hypofunction of the thyroid give thyroid extract, plain or enteric coated, in large enough dosage to increase oxidation and diuresis. The dosage should be pushed to the point of tolerance. Thyroxin in myxedema is more effective than thyroid substance.

In the pituitary type whole pituitary by hypodermic injection,  $\frac{1}{2}$  to 2 c.c. two to three times weekly in combination with thyroid by mouth, is very effective. In a few cases with water and salt retention, as in the hypophyseal cerebral type of obesity, diuretics should be administered. These may consist of novasurol and salyrgon intramuscularly,  $\frac{1}{2}$  to 1 c.c., with thyroid and the potassium salts, such as potassium carbonate gr. X, four times daily.

Nonspecific protein, as peptone, boiled milk or aolan, should be used in the lipomatosis cases. For the suprarenal type which is often associated with menstrual disturbances give ovarian substance and corpus luteum by hypodermic injection, three times weekly. Small doses of thyroid likewise should be added. If hyperglycemia is present insulin may be necessary although in this type dietary management generally suffices.

In the gonadal type, if recognized early in life, endocrine therapy is indicated as there is generally an associated thyroid or pituitary dysfunction. In the female, corpus luteum, ovarian substance and follicular substance should be used.

Glandular therapy is no panacea for the treatment of obesity. It is merely an adjunct to the dietary management of a pathological condition. Likewise, the management of all types of obesity cannot be controlled by dietary measures alone. Consideration must be given to some etiological factor, such as the role played by the various endocrine glands.

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## ARTHRITIS OF THE FEET\*

JAMES R. ELLIOTT, M.D.

KANSAS CITY, MO.

Painful feet remain an integral part of the complaints which confront the orthopedist in both clinical and private practice. The writer is coming to recognize an arthritic element in an increasing percentage of these cases. Feet that are "out of plumb" are subjected to abnormal strain and trauma and for this reason often are the seat of first symptoms and the patient thinks the pain is the result of "fallen arches." The fact is that trauma resulting from faulty posture renders the feet vulnerable to attack by the toxins which circulate in the blood stream. This condition has wide age incidence but is less frequent in the young.

There is no set of rules for differential diagnosis but I will mention a few symptoms which point to arthritis rather than foot strain, such as, sudden onset, maximum pain on arising in the morning which tends to decrease during the day, swelling about feet and ankles in the morning, and a sensation of needles pricking the plantar surfaces of the feet.

All cases with defective weight-bearing position of the feet are treated posturally. This should assist in differentiation; if the cause is postural the pain will disappear with treatment; if arthritis, the pain will be only partially relieved and the above-mentioned symptoms will remain prominent. When once recognized the treatment resolves itself into the usual search for the etiologic focus and, when possible, its elimination. In children and young adults the tonsils are the most likely source, not forgetting Neisserian infection in the adults. In middle life as well as in older people, dental infection must be regarded as the most likely cause. There is no simple formula. The problem is as complicated as are other arthritic involvements. Because the teeth have been extracted is no reason to assume that foci may not still be present in the mandible or maxillary bone. The cause may lie in the intestinal tract or even in faulty metabolism. If the pain is less diffuse, centering in the forward mesoplatar surface of the heel, a deep calcaneal bursitis must be held as a possibility. Those who are not familiar with Hertzler's original work on this subject are referred to his treatise.<sup>1</sup> It is his opinion that the pain usually considered to originate from spurs on the os calcis is not caused by the spurs at all but by an inflammation

of a deep calcaneal bursa. It is the writer's opinion that Hertzler has proved his case. This condition would fall roughly under the classification of arthritis. The treatment is however a combination of eliminating known foci and surgical destruction of the bursa, the technic of which he describes in the article referred to.

I could go on indefinitely with case reports but will mention only a few of the more striking cases. I do not mean to imply that all cases are as clearly defined or as successfully treated as those which I shall describe, but a survey of my files reveals that about 90 per cent of the cases diagnosed as arthritis of the feet show a very satisfactory end result. One is, as a rule, dealing with an incipient condition which doubtless accounts for the high percentage of favorable results.

### REPORT OF CASES

Case 1. Mrs. E. R., aged 35, saleswoman, first seen June 14, 1923. Had trouble with her feet for years. Marked exostosis of left fifth metatarsal, thick callosities of both forward plantar surfaces, transverse arches depressed, both longitudinal arches moderately lowered, pronation present in moderate degree, bilateral. Patient was treated posturally with much improvement, but not completely relieved. Tonsillectomy was urged but not done until February 18, 1924, and the writer at the same time removed the exostosis from the fifth metatarsal bone. Patient was seen occasionally until August 27, 1924, at which time she was very comfortable. She was seen by chance February 28, 1925. She had been symptom-free for months.

Case 2. Miss P. O., aged 16, worked as nurse-maid and attended high school. First seen May 8, 1924. Had severe pain, of sudden onset, for four weeks. Objective findings were as follows: Left foot quite pronated, right moderately so, dorsiflexion of ankles, left 75 degrees, right 90 degrees. She complained of pain in the longitudinal arches and right heel. Tonsils were very suspicious, teeth excellent. Support for the longitudinal arches gave little relief. Patient was seen five and ten days later. Very little relief had been obtained. Tonsillectomy was urged at this time but not done until two weeks later. Pain in feet had entirely disappeared by the time patient left the hospital, three days later. She was seen occasionally for the next two years. There was no return of symptoms.

Case 3. Mr. J. W., aged 36, mechanic. First seen February 23, 1927. This was the first time he had been out of bed for ten days. There was no history of previous similar attacks or of rheumatism. He walked with great difficulty, using crutches. On examining his feet, there was no lowering of the longitudinal arches, no pronation, no plantar fascia strain, transverse arches were slightly depressed. The skin of feet was congested. Feet were extremely sensitive to pressure wherever touched. I then looked in his mouth. Tonsils were out. He had a three-tooth bridge, lower left, placed twelve years before. Roentgen ray revealed an incomplete extraction of the missing bicuspid with extensive granuloma formation about the remaining root tip. This focus was removed surgically the following day. Twenty-four hours later he was pain free and has remained so.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. Hertzler, A. E.: Inflammation of the Calcaneal Bursa, J. A. M. A. 81:8, 1923.



## SUMMARY

Painful feet which do not respond to postural treatment are very likely to be arthritic, with or without manifestations elsewhere in the body. Feet in which the pain is unduly severe may be presumed to be arthritic. Sudden onset of extreme pain in feet should be considered arthritic in origin, and search made for the primary focus. Pain in the heel of the so-called spur type, is in reality of infectious origin arising from an inflammation of the deep calcaneal bursa.

1332 Professional Building.

## DISCUSSION

DR. ROBERT E. BREUER, Newburg: In these cases do you usually have fever or rise of temperature? And second, do you usually have a venous disturbance of the lower limbs? I have a patient, a high school boy, whose tonsils and adenoids were removed several years ago; nasal passages clean. Dentist assures me there is no trouble with teeth. He had venous disturbance of both lower limbs, more extreme on right. He has had no rise of temperature. My diagnosis is still unmade. I have a similar case in a young lady of 19 years but not as extreme.

(Since the above was spoken this boy improved almost to the point of recovery during last two weeks of May and first week of June, but then without apparent cause experienced relapse.)

DR. J. T. HORNBACKE, Nevada: How do you treat the bursitis?

DR. M. P. NEAL, Columbia: Is the Doctor inclined to discuss sympathectomy and other methods as applicable to this type of case, and if so, to what extent?

DR. JAMES R. ELLIOTT, in closing: There is a general venous disturbance of the circulation of the lower limbs, particularly of the feet. There is congestion of the feet. The feet are bluish-red. As to the rise of temperature, those cases that were very severe did show a little rise in temperature. Two of the cases I mentioned could hardly stand. The pain was of sudden onset and short duration; it left almost as suddenly as it came on in these particular cases.

The bursitis, when the diagnosis is made, is treated surgically by the technic devised by Hertzler. It is usually done under local anesthesia. The incision is seldom more than an inch long. It is difficult to give you the landmarks for this incision verbally, but it is described in Hertzler's article referred to. By blunt dissection you go down to the bursa with a hemostat. Take a little swab of 10 per cent iodine and cauterize the bursa with that strong solution. The mucous membrane cells do not tolerate iodine of that strength well and it really amounts to a chemical cautery of the mucous cells lining the bursa. The patient is kept off his feet for a few days. It is really a minor surgical procedure.

I do not believe sympathectomy is applicable to this type of case. Arthritis of the type I am referring to is a toxic condition and I do not believe would be particularly benefited by sympathectomy.

## DIAGNOSIS OF COMMON ANORECTAL DISEASES\*

FREDERICK B. CAMPBELL, M.D.

KANSAS CITY, MO.

The diagnosis of common anorectal diseases is simplified by (1) familiarity with a few essential points in anatomy; (2) familiarity with lesions most commonly found; (3) a gentle but complete examination.

The anorectal region may be likened to a funnel. The upper part of the funnel, the rectum, is derived from the hindgut and brings with it the sympathetic nerves and visceral blood vessels and lymphatics. Its epithelial lining is a true mucous membrane.

The anal canal is of ectodermal origin and therefore has cerebrospinal sensory nerves, and its blood and lymph supply belongs to the general circulation. A modified squamous epithelium lines this canal, hence, Pennington's description of this area as the "Splanchno-Somatic Funnel" affords us a very satisfactory working basis.

The line where these two systems join may be described as "the watershed." The watershed or mucocutaneous line is an irregular but sharply defined line which lies at the neck of the funnel at the level of the internal sphincter. Above the mucocutaneous line the shiny red color is due to the single layer of mucous secreting epithelium, while below the dull pink is due to stratified squamous epithelium.

Several factors predispose the anorectal region to trouble. The fecal mass being forced from the larger canal through a smaller one predisposes this area to trauma. This is especially true when an already existing irritation is causing spastic contractions.

The absence of valves in the hemorrhoidal veins favors stasis and congestion when the individual is inactive, and hypertension during exertion. Inhibited bowel reflexes, abuse by enemas or cathartics, and hereditary tendency all play a part.

Common lesions may be grouped under the following classes:

## Structural Weakness:

- Hemorrhoids
- Mucosal prolapse
- Anal skin prolapse
- Rectal prolapse

## Infections:

- Fissure
- Cryptitis
- Proctitis
- Abscess
- Fistula

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



Neoplasms :

Hypertrophic papillae

Polyps

Adenoma

Carcinoma

With this plan before us the interpretation of symptoms becomes simplified and diagnosis rests upon the skill of the examiner in finding and interpreting the pathology present.

Fortunately, the diagnosis is frequently self-evident. For the average case a routine examination should be made to insure thoroughness. This includes (1) inspection, (2) palpation, (3) anoscopy, and (4) proctoscopy. In certain cases we should include roentgen ray and consultation with the internist. The exceptions to this type of examination are self-evident, as, for example, abscess.

Ninety-five per cent of anorectal disease occurs at or near the mucocutaneous line. Pathology here is best observed through some type of short anoscope. While there is no single instrument ideal for every case, if one will familiarize himself with the use of one instrument much valuable information can be gained, such as the size of internal hemorrhoids and evidences of infection.

A proctoscopic examination should always be made if one is to avoid the embarrassment of overlooking a carcinoma higher up.

A few pertinent facts may be noted :

1. An acutely painful lesion must involve the skin of the anal canal somewhere below the mucocutaneous line.

2. Ulcer in the rectum causes no pain until the deeper structures are involved.

3. Rectal mucous membrane below the sphincters is due to prolapse, whether accompanied by varicose veins or not.

4. Swollen inguinal lymph nodes denote involvement of the skin below the mucocutaneous line, whether due to infection or carcinoma.

5. Symptoms from anorectal disease may be remote as well as local. The cerebrospinal and sympathetic nervous systems are both traumatized.

1210 Professional Bldg.

## INTUSSUSCEPTION

### REPORT OF A CASE

E. W. HICKSON, M.D.

MILAN, MO.

In reporting this case of intussusception I wish to emphasize a very important point to which Holt draws attention in the simple sentence, "The abdomen is relaxed." I was not aware of this indication until I read Holt's treatise on intussusception after the operation.

I think general practitioners are of the opinion that I held, i. e., that the abdomen is broad-like and physicians to whom I have spoken since reading Holt's article were of this same opinion. The three cases that I had seen previously all presented abdominal rigidity.

### REPORT OF CASE

Baby boy, aged 9 months, weight 24 pounds, in perfect health up to thirty minutes before he was seen by me. Brought to my office at 8 p. m., August 2, 1930, showing marked prostration and pallor, eyes rolled upward. He would lie on the examining table almost lifeless except for normal breathing for perhaps fifteen minutes; then he would double up in a paroxysm of pain, flexing the thighs on the abdomen, or would roll on his face and quickly gain the knee-chest position, all the while giving a characteristic scream which, if one has ever heard he will not be apt to forget. Examination showed full pulse, 120, rectal temperature 98.8 F., white count 18,000, no vomiting, no stool, abdomen soft, no mass, no distention, a slight flinch on deep pressure over McBurney's point suggesting, with the blood count, a ruptured appendix and necessarily the inadvisability of operating if such were the case. On rectal examination, no mass was felt; some flatus was expelled. A high enema was given with the hips elevated. It was returned with some feces and one or two small streaks of blood. No relief followed this procedure. The diagnosis of ileocecal intussusception was arrived at. The baby was rushed to a hospital where an operation two hours later confirmed the diagnosis. Intra-abdominal examination disclosed a small mass in the right ileocecal region. About eighteen inches of ileum were invaginated through the ileocecal valve and the intestine was quite blue.

The following day the baby's pulse, temperature and respiratory rate were normal and he was playing with paper dolls.

The diagnosis was made on (1) the sudden onset, (2) prostration and toxemia, (3) paroxysmal pain and characteristic scream.

### INCIDENCE OF RECURRENT RESPIRATORY INFECTIONS IN CHILDHOOD

Of 582 children with respiratory infections observed by C. C. McLean, Birmingham, Ala. (Journal A. M. A., Nov. 1, 1930), from Sept. 1, 1928, to June 1, 1929, 241, or 41.7 per cent, had one or more recurrent infections. Weather conditions apparently had little or no effect on the number of primary or recurrent respiratory infections. The recurrent infections were apparently as common in the patient who had had tonsillectomy and adenoidectomy as those who had not had the operation. The monthly percentage increase of the total number of primary cases showed a marked variation, while the monthly percentage of recurrences in primary cases showed little variation. Contact with individuals who had the disease seemed to have a marked influence on the number of primary infections. Apparently, contact with individuals with the disease had little or no effect on the number of recurrent infections. He concludes that the consistency in the periodic recurrent incidence in respiratory infections, as observed over an eight-year period, is more than suggestive of a periodic recurrent disease.

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JANUARY, 1931

### EDITORIALS

#### WHITE HOUSE CONFERENCE ON CHILD HEALTH

The White House Conference on Child Health and Protection called by President Hoover met in Washington, November 19 to 22, 1930. It was much larger and more extensive in its scope and work than the previous conferences called by Presidents Roosevelt and Wilson during their administrations.

The work of the Conference was divided into four sections, (1) Medical Care and Service, (2) Public Health, (3) Education, (4) The Dependent and Handicapped, and was under the general chairmanship of Secretary Willbur. For almost a year over 1,200 workers in the various fields of child life have been engaged in analyzing the present scope of what is being done for the health of the child and attempting with this as a basis to plan a program for the future.

Approximately 5,000 delegates were present from all parts of the United States, and it is interesting to note that it was one feature of the program of the present Administration that was acclaimed from all sides and approved by political foes as well as friends. The only untoward incident was the creeping in of an old standing interdepartmental row between two of the government bureaus with child health activities. It was unfortunate for the Conference as a whole that both departments lost sight of the main issue and befogged the public eye with their personal row over matters which are trivial when compared with the subject as a whole. It was a striking instance of the tendency of bureaucrats to put the job ahead of the work. Still more unfortunate was the manner in which the daily press featured the row as "news."

The work of the Committee on Medical Care and Service (Section 1) was not completed and only preliminary reports were given. The

work and reports of the studies of this section which are of particular interest to the physician will be given at a special separate meeting in February, 1931. This will give an opportunity for technical discussion.

What is being accomplished by the Conference is in reality a stock-taking of the present status of the health of children and of what is being done. Based upon this a program will be formulated of what ought to be done and undoubtedly the judgment of the Conference will form a guide for the next decade at least for the workers and for the many thousands of philanthropic-minded persons who in one way or another are interested in child health and protection.

Of the twenty-eight committee members from Missouri serving on the various section committees eleven are physicians belonging to the Missouri State Medical Association.

#### PURE MILK

Of great interest to the medical profession are organizations which have the promotion of health as their principal object and which function in harmony with the principles of the organized medical profession. Such an organization is the American Association of Medical Milk Commissions under which three dairies in St. Louis and two in Kansas City operate. The dairies in St. Louis producing certified milk under the St. Louis Pure Milk Commission, a member of the national organization, are the Pevely, the Highland, and the St. Louis. The Kansas City Medical Milk Commission supervises the distribution of certified milk in that city by the Adams Dairy at Blue Springs (distributed through the Aines Dairy) and the Overland Guernsey Dairy at Overland Park, Kansas.

At the annual meeting held in Detroit last June the association decided to publish a new edition of the requirements to be met by dairies seeking the approval of the association for the production of certified milk. The pamphlet has now been distributed.

The local commissions supervise the hygiene of the dairy as it relates to the production and distribution of milk, the veterinary care of the herd, the health condition of employees and the bacteriological and chemical examination of the milk. The local commissions, each of which is composed of five members, appoints a sanitary inspector, a veterinarian, a physician and an analyst who render regular reports. Dr. Adrien Bleyer is president of the St. Louis commission and Dr. Harry M. Gilkey is president of the Kansas City commission.

The book of instructions, "Methods and



Standards for Certified Milk," includes requirements for the location and surroundings of the buildings. Milking stables must meet standards as to construction, condition in which they are kept, drinking and feeding troughs, ventilation and exclusion of vermin and insects. Qualifications are set forth for the receiving room and the dairy building, and these must not communicate directly with the stables. Bottles, utensils and milking machines must be cleaned according to the rulings.

Any dairy may undertake the production of certified milk and seals will be furnished the dairy when qualifications have been met. When application is made for certification of the milk, a tuberculin test is made of the herd; if any cow reacts she is eliminated and a second test is run in from 60 to 90 days. Thereafter the herd is tested every six months.

Employees must have a health certificate before they are allowed to work and thereafter are examined weekly and a report made.

The standards of certified milk are purity, cleanliness, natural condition, bacterial count of not over 10,000, and butter fat between 3.5 and 4 per cent.

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#### DR. RAVENEL, CONSULTANT OF THE STATE BOARD OF HEALTH

Dr. Mazyck P. Ravenel, Columbia, professor of preventive medicine and bacteriology at the University of Missouri, was appointed consultant in public health and medical education to the Missouri State Board of Health, December 2, 1930. Dr. Ravenel is an internationally known authority on public health, hygiene and sanitation and was appointed in connection with the department's expansion program in health conservation. Dr. Ravenel is a graduate of the Medical College of the University of South Carolina and has engaged in research work in the Pasteur Institute, Paris; the Hygienic Institute of the University of Halle, France; and the Maragliano Institute, Genoa, Italy.

The scientific accuracy of Dr. Ravenel's work and his ability as a pioneer bacteriologist were established through a controversy with the eminent German scientist Dr. Koch, when Dr. Ravenel proved in opposition to Dr. Koch's contention, that human beings can contract the bovine type of tuberculosis under certain conditions.

Dr. Ravenel has served as bacteriologist for the State Live Stock Sanitary Board of Pennsylvania, as assistant medical director of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis, chief of laboratories for the Henry Phipps Institute,

professor of bacteriology at the University of Wisconsin, and director of the State Hygienic Laboratory of Wisconsin. He has written numerous articles on scientific subjects, especially tuberculosis and rabies. Since 1914 he has held the chair of preventive medicine and bacteriology at the University of Missouri. He is a member of many scientific societies in the United States and abroad and served as president of the American Public Health Association in 1920-1921 and was editor of the journal of the association for a number of years. During the World War Dr. Ravenel served as lieutenant-colonel in the Medical Corps of the United States Army and now holds a commission as assistant surgeon-general in the Reserve Corps of the United States Public Health Service.

Dr. Ravenel's wide and varied experience in the field of public health will be particularly valuable to the state board of health at this time in combating the greater health hazard resulting from the generally lowered physical resistance of a great many people growing out of the drouth of last summer and the present economic depression with its lowered standards of living. He will lend his influence to the development and expansion of courses in public health and preventive medicine in medical schools to meet the practical needs of the public for health protection and cooperation with the medical profession in the practical application of scientific discoveries to the prevention and treatment of disease.

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#### THE CANCER CONTROL CAMPAIGN IN ST. LOUIS

The American Society for the Control of Cancer is an educational organization whose purpose is that of disseminating information about cancer to physicians and laymen. The first active movement of this kind in America was initiated in New York City 15 years ago. Founded by a physician it has become an organization in which the layman plays as big a part and sometimes a more important one than the physician. The general headquarters in New York City, endowed with one million dollars by a layman, has ample funds to employ a group of doctors on a full time basis. These men are intensely interested in cancer control. It has become a nation-wide movement in that these doctors make personal contact at certain intervals of time with physicians interested in cancer throughout the country. Each man is given a definite territory so as to facilitate a closer contact between the local situation, the field representative and the national headquarters.

The board of directors of the National

Committee as well as local committees is composed of laymen and physicians. These lay people have become convinced of the usefulness of the movement to themselves and to society at large and are cognizant of the part they can play.

Probably back of the whole movement is the element of fear. Some may fear an affliction by this malignant ravage; some may consider the reduction of it a task well worth striving for from a humanitarian or economical standpoint.

What can be hoped for in the control of this disease and what has been accomplished? In answer to these queries a statement of fact by a leading New York physician is enlightening, i. e.: Fifteen years ago the cancer wards in the large hospitals in New York contained a great majority of cases of advanced cancer; the small percentage of these advanced cases at the present time come from rural communities which have not received the cancer control message; New York City has become cancer educated; the situation in England as observed by this physician a year ago was like that in New York 15 years ago, the cancer wards there having a majority of advanced cases. England has not instituted cancer control propaganda.

It has been estimated that if all people could be properly "cancer educated" the existing mortality would be reduced one half, physicians using the recognized therapy for cancer in its early stages.

The toll of deaths from cancer in Missouri is 4,000 per year. In 1929 in St. Louis 1 in every 10 deaths was caused by cancer. In the United States registration area there were 63 deaths from cancer and 79 from tuberculosis per 100,000 population in 1900. In 1928 there were 96 deaths from cancer and 79 from tuberculosis. This increase in deaths from cancer may not be wholly real on account of the average increased span of life as compared to 20 years ago. However, cancer deaths have increased one third and tuberculosis deaths have decreased two thirds in this period. The major reason for the decrease in deaths from tuberculosis is the extensive educational campaigns sponsored by tuberculosis societies. The problem of combating tuberculosis is not so difficult as that of cancer from the standpoint of education because the individual with early signs of tuberculosis is sick and when sick one seeks medical attention; he is disabled. From the standpoint of disability the individual with early cancer is not sick and when incapacitated from cancer the cancer is usually beyond the state of development in which cure is possible. These people must be educated in the recognition of the early signs and symptoms of cancer.

The reduction of mortality from cancer is important from the economic standpoint when we consider the statistics of the Metropolitan Life Insurance Company that the cost of cancer in the United States registration area is about one billion dollars annually. No doubt this economic situation as well as the humanitarian motive prompted the legislature of Massachusetts to appropriate \$100,000 annually toward cancer control. Massachusetts has equipped clinics and hospitals for the purpose of guiding the cancer patient to the proper source for treatment at the earliest stage possible. It was made a public health measure and in comparative studies of the situation now and a few years ago when this extensive program was started, one must conclude that the results are satisfactory for the appropriation is being continued.

Being convinced that early recognition of cancer with the institution of reliable methods for its removal is the only means of controlling cancer at the present time it is the purpose of the American Society to inform doctors and laymen of this fact. By warning against cancer quacks who use special serums, vaccines, salves and what not, and emphasizing that surgery, radium and roentgen rays in the hands of reliable and sometimes specially trained physicians offer the only hope of cure, is it possible to reduce the existing mortality.

An educational campaign has just ended in Missouri. During this campaign 320,000 pieces of literature were distributed. This literature is furnished by the New York headquarters and depicts in concise form the signs, symptoms and only hope for cure of cancer. Similar literature is available for the doctor and dentist as well as the layman. In the public schools of St. Louis 120,000 pieces of literature were distributed and 135,000 in the parochial schools. In each case the pupil was instructed by the teacher to take the literature home, which leads us to believe that virtually all these homes received the message of the American Society for the Control of Cancer. Approximately 70,000 pieces of literature were distributed from Protestant and Jewish churches in the city, 5,000 copies were used by the Frisco Railroad and 5,500 by the employees of the Public Service Company. The Metropolitan Life Insurance Company distributed 25,000 pieces by hand through various employees scattered throughout the metropolitan district and 1,000 copies went into the hands of the Pevely Dairy Company and approximately 5,000 were distributed among the various hospitals in the city. Twenty sub-chairmen, doctors of high standing in their communities, conducted minor campaigns in strategic points throughout the state and dis-



tributed in the neighborhood of 20,000 pieces of literature.

During the campaign in St. Louis the warning of the American Society for the Control of Cancer was placed inside of every street car in St. Louis and on the inside and outside of every bus operated by the People's Motor Bus Company; also on fifty billboards within the metropolitan area.

Daily stories were submitted to the four local newspapers over a period of eighteen days. Approximately two thirds of these stories were used by the newspapers. Two stories were submitted to 150 weekly newspapers throughout the state, and 3 stories to 33 daily newspapers within the state.

An article was prepared for 191 parent teachers associations, mothers' clubs and similar organizations, including the Boy Scouts and Girl Scouts. Another article was prepared and mailed to the pastors of 600 Jewish, Protestant and Catholic churches in St. Louis and St. Louis County and the article was used on the Sunday of the campaign, December 7. The pastors of these churches were also asked to use the article at meetings of various church societies during the week. A third article was prepared and mailed to 88 member organizations of the Federation of Women's Clubs with the suggestion that it be read into their minutes. An article was mailed to 275 chambers of commerce, service clubs, business men's clubs and similar organizations together with a special newspaper article using the name of the organization.

The message of the society was published in 7 foreign language newspapers in St. Louis and literature in their various languages was distributed from the community centers of 9 foreign language societies. Two articles were used in 150 neighborhood newspapers and house organs and similar publications during the campaign.

Thus through the medium of the press, the various publications, churches, women's organizations, service clubs, and the distribution of literature it is believed that virtually every person in St. Louis received the message of the American Society for the Control of Cancer during the campaign.

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#### HOFRAT PROFESSOR ERNST FUCHS

When press dispatches brought the sad news to American readers on November 22 of last year that Dr. Ernst Fuchs, emeritus professor of ophthalmology in the University of Vienna, had died on the preceding day, thousands of physicians recalled the name and kindly face of the man who was regarded as one of the

world's outstanding authorities on diseases of the eye. Many American oculists had known him personally, hundreds had become acquainted with his methods at Vienna and all honored and respected him for his scholarship and personal worth.

Professor Fuchs was in his eightieth year at the time of his death. He was born on June 14, 1851, at Vienna. His ancestors were agriculturists from the Böhmerwald district. His father was professor at the Technical High School of Vienna. During his professional studies at the universities of Vienna and Innsbruck, Dr. Fuchs was assistant at the Physiological Institute of the latter university. Having received his degree in 1874 he served as junior assistant surgeon in Billroth's clinic. This was before the days of antiseptic surgery.

After his term with Billroth Fuchs became assistant in the clinic of the famous ophthalmologist Arlt. Here he worked until 1880. Even during his two years in the Billroth clinic he had begun to pay special attention to pathologic histology in order to trace more accurately the etiology and course of disease. While assistant to Arlt he was the first to lecture in English to American students of ophthalmology.

In 1880 when he was but 30 years of age he was called to Liège as professor of ophthalmology, holding the position until 1884. To this period belongs his well known treatise on the "Causes and Prevention of Blindness." This work received the prize of the London Society for the Prevention of Blindness.

Returning to Vienna in 1884 he became director of the newly established II. University Eye Clinic which formerly, under Professor Jaeger, had been only an ophthalmological division of the General Hospital. He gave up his position as professor at Vienna in 1915 in order to enable younger men to take up his work and also to develop for widest scientific use his unusually rich collection of pathological specimens illustrating diseases of the eye.

Fuchs was very keen in his clinical observations. Aided by a wonderfully retentive memory, he readily recognized lesions of rare occurrence and determined for us a number of hitherto unknown diseases. He was without doubt the chief authority on the histopathology of the eye. Sundays frequently found him in his little laboratory, which occupied a small corner in the clinic and looked more like a modest workshop than an important center of scientific research. His investigation of chorioidal detachment following cataract extraction led the way to Heine's operation for cyclodialysis. To Fuchs we are indebted for the accurate characterization of sympathetic



ophthalmia. His textbook on ophthalmology would alone have sufficed to give him an international reputation and has been translated into the languages of all the cultured nations.

Personally, Fuchs was very amiable and hospitable. Visiting Americans often met at his home. In his clinical work he was exacting and expected a full share of work and cooperation from all his assistants. His lectures were marked by clarity. As an examiner he was feared, though full justice was always meted out to all.

Much he traveled and well could he tell of his experiences and adventures in out-of-the-way places of the world. He knew Europe from end to end and in 1922 he took a trip around the world. On this occasion he spent several weeks in St. Louis.

Fresh in the memory of all, is the visit he paid the United States in the fall of 1930 when the leading medical centers of the country vied to do honor to the modest, retiring, kindly, world-famous celebrity. St. Louis invited him to speak at the four-day convention of the National Society for the Prevention of Blindness, which was held at the Hotel Chase. The St. Louis Medical Society arranged a reception in his honor.

The learned, scholarly, genial man of science, the lover of suffering humanity has departed from our midst. He has left us a beautiful legacy. And that is the value of a laborious life for mankind, the lasting worth of steadfast, persevering effort to alleviate human afflictions.

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## NEWS NOTES

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Professor Robert R. Bensley of the University of Chicago gave the annual Alpha Omega Alpha address at the school of medicine of St. Louis University, December 4. His subject was "Hyperinsulinism."

The American College of Surgeons will hold a sectional meeting for the states of Missouri, Iowa and Kansas at St. Joseph, January 5 and 6. All Fellows of the College of Surgeons, College of Physicians, Junior Candidate Group, physicians in good standing in the three states and other states, those interested in hospital executive work, the nursing staffs of hospitals and nursing profession, are invited to attend. The theme of the public meeting to be held on the evening of January 6 in the Crystal Room of the Robidoux Hotel will be "Cooperation Between Scientific Medicine and the Public." Dr. Caryl Potter, St. Joseph, is chairman of the Missouri State Section.

The Hodgen Lecture for 1931 will be delivered before the St. Louis Medical Society by Dr. W. Edward Gallie, professor of surgery at the University of Toronto Faculty of Medicine, on Tuesday, January 13, 1931. His subject will be "Recent Advances in the Transplantation of the Fibrous Tissues."

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Dr. Willard Bartlett, St. Louis, was the guest of the Tarrant County (Texas) Medical Society, Fort Worth, November 4, 1930, where he delivered an address entitled "Timely Recognition of Surgical Patients Who Are Especially Likely to Die in the Hospital." He analyzed a series of 100 deaths that occurred in hospitals.

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Dr. Cyrus C. Sturgis, Ann Arbor, professor of internal medicine in the University of Michigan, was the guest of the St. Louis Medical Society, November 25, 1930, and delivered an address on "Recent Developments in the Treatment of Pernicious Anemia." Dr. Sturgis is director of the Simpson Memorial Institute at Ann Arbor, which is dedicated to the study and treatment of pernicious anemia.

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Methanol when used strictly as an antifreeze liquid in automobiles is far less dangerous than carbon monoxide, according to Dr. H. S. Cumming, surgeon general, United States Public Health Service. His opinion is based on observations made by the Bureau of Mines. He said the greatest danger is the drinking of methanol and its use in shellacs applied over considerable surfaces without sufficient ventilation. He recommends that methanol be used only as an antifreeze liquid for cars until a complete study is made.

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The United States Civil Service Commission announces open competitive examination for medical officer, associate medical officer and assistant medical officer in general medicine and surgery. Applications will be rated as received by the Commission at Washington, D. C., until June 30, 1931. The examinations are to fill vacancies in the Departmental Service, Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Service. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience. Full information may be obtained from the Civil Service Commission at Washington, D. C., or the secretary of the Civil Service Board of Examiners at the post office or customhouse in any city.

Members of the St. Louis Medical Society were guests at a meeting of the St. Louis Society of Dental Science at the Hotel Chase, December 11, 1930. Dr. Boyd S. Gardner, D.D.S., of the Mayo Clinic, was the essayist. He spoke on the "Independence of Medicine and Dentistry, with Special Reference to Painless Teeth."

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The name of the Jewish Memorial Hospital under construction on Fiftieth Street between Holmes and Troost, Kansas City, has been changed to Menorah Hospital. The hospital will be nonsectarian and for that reason the name was changed, Henry A. Auerbach, president of the Jewish Memorial Hospital Association, announced. The Menorah is the holy, seven-branched candelabrum of the Jewish church. It represents the creation of the universe in six days, the center light symbolizing the Sabbath. The hospital is about half completed and will cost approximately \$1,000,000. It will be ready for occupancy about June, 1931.

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The January hospital clinic of the Kansas City Southwest Clinical Society will be held at the Research Hospital, Kansas City, January 13, 1931. Clinics and clinical lectures will be given by members of the society during the first part of the program. Dr. William T. Coughlin, St. Louis, professor of surgery St. Louis University School of Medicine, will deliver a lecture on "The Diagnosis and Treatment of the Acute Abdomen." Dr. Coughlin will be guest speaker at the Jackson County Medical Society meeting in the evening. His address will be "My Personal Experience with Sympathectomy for Arthritis."

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The final report of the public health and welfare subcommittee of the civic improvement committee of Kansas City, made December 12, by Dr. Robert McE. Schauffler, representing the committee on hospitals, included suggestions for improvement of the city hospitals. In the three million dollar hospital program provision was made for expansion of the tuberculosis hospital at Leeds with new buildings, additions and equipment, and a preventorium and school for children exposed to tuberculosis, costing \$125,000. A new wing for the general hospital and a new isolation building, a central heating plant to care for all the city buildings on "Hospital Hill," purchase of radium, and a nurses' home for General Hospital No. 2, were other recommendations.

Preventive medicine in Colombia has received a severe setback according to authorities of that country by the death of sixteen children and the severe illness from diphtheria of thirty-three others, caused by the accidental administration of diphtheria toxin instead of antitoxin by an intern in a private hospital at Medellin, Colombia. The intern became insane after the tragedy. According to Prof. Cesra Uribe, director of the National University Faculty of Medicine and Natural Science, at Bogota, and a former member of the faculty of the Harvard University Medical School, the poorer classes had just reached the state of being willing to submit to vaccination and inoculation, but this unfortunate accident has rearoused public fear.

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The Missouri Methodist and Noyes-Baptist hospitals, St. Joseph, were merged December 13, and patients were moved from the Noyes-Baptist Hospital during the following week. The merger entailed the purchase of the Noyes-Baptist Hospital building by the Missouri Methodist Hospital and conversion of the Noyes-Baptist Hospital building into a nurses' home. The consolidated institution will retain the name of the Missouri Methodist Hospital. The Missouri Methodist Hospital was established in 1898 as a general hospital of 200-bed capacity and 25 basinetts. A school of nursing is conducted in connection with the hospital. The Noyes-Baptist Hospital was originally established in 1916 as the Noyes Hospital with 80 beds and 10 basinetts and a school of nursing.

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An appropriation of \$100,000 will be asked at the next meeting of the legislature for a tuberculosis and contagious disease ward at State Hospital No. 2, St. Joseph. This is one of the most important needs at the institution according to Dr. George A. Johns, superintendent, as patients ill with contagious diseases are cared for only as well as can be done with the antiquated facilities at the hospital and safeguards against the spread of the diseases are imperfect. Due to the technical interpretation of the word "replacement," \$4,200 released during the summer for a new building for employees will not be used. Roy H. Monier, president of the state eleemosynary board, says the board will ask the legislature to change the law so as to permit the employment of one physician to each 250 patients in the state hospitals. This would have a good influence at all the institutions but would especially affect State Hospital No. 2 where there are 2,200 patients with only four staff physicians and the superintendent to care for them.



A \$500,000 endowment campaign for the Warm Springs Foundation, Warm Springs, Georgia, an institution for the treatment of infantile paralysis, was announced by Governor Franklin D. Roosevelt, of New York, in an address which he delivered at a dinner given in his honor by the patients in the institution, November 28, 1930. Each year since Governor Roosevelt established the foundation in 1927 the patients have gathered on the night of Thanksgiving Day to honor him. Governor Roosevelt said the purpose of the endowment was to extend the treatment given at the institution to a larger number of afflicted persons.

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Tentative information concerning the seventh annual European assemblies of the Inter-State Post Graduate Medical Association of North America has been issued. The tour, including clinics at Montreal and Toronto, will be from May 10 to July 11, 1931. In Europe, clinics will be held in London, Birmingham, Liverpool, Dublin, Belfast, Glasgow, Edinburgh, Manchester, Amsterdam, The Hague, Brussels, and Paris. Sightseeing will be combined with work. Further information may be obtained from Dr. W. B. Peck, managing director, Freeport, Illinois. Dr. Evarts A. Graham, St. Louis, is a member of the committee on medical research and advancement.

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A temporary restraining order issued on November 19, 1930, by Judge W. S. Stillwell, of the Cole County Court, Jefferson City, prevented the State Board of Health from proceeding with the trial of Dr. J. R. Brinkley, Milford, Kansas, goat gland quack, which had been set for hearing in Kansas City, November 25. The Board of Health had cited Brinkley to appear and show cause why his license to practice medicine in Missouri should not be revoked. In his complaint before the court Brinkley contended he had not been given proper notice that the hearing was to be held. Papers were served on Brinkley by representatives of the Missouri State Board of Health after several unsuccessful attempts to get service through the sheriff of Brinkley's home county. The injunction is returnable February 1, 1931.

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The Ninth Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will be held in Kansas City during the week of October 5-10, 1931. Dr. E. Starr Judd, Rochester, Minnesota, President-Elect of the American Medical Association, and Dr. Joseph Colt Bloodgood, Baltimore, clinical professor of surgery at Johns Hopkins University School

of Medicine, have accepted invitations to take part in the conference.

The regular monthly clinic was held at the Kansas City General Hospital, December 9, 1930, with Dr. Edward P. Heller as local chairman. The program consisted of eight papers and a clinical demonstration on traumatic and orthopedic surgery. At the annual meeting held on November 10, Dr. John F. Hassig, Kansas City, Kansas, was elected president. Dr. Hassig is president of the Kansas State Board of Medical Registration and Examination, a position which he has held for the last seven years. Other officers elected were Dr. R. E. Teall, vice president; Dr. Joseph E. Welker, secretary; Dr. H. S. Valentine, treasurer; Dr. A. Morris Ginsberg, director of clinics; Dr. E. C. Padgett, associate director of clinics, all of Kansas City, Missouri; Drs. E. H. Skinner, M. J. Owens, T. G. Orr, F. B. Kyger, of Kansas City, Missouri, and L. G. Allen, Kansas City, Kansas, executive committee.

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Continued close regulatory control of imported digitalis as it enters the channels of trade in this country, is included in plans for the year by the drug control office of the Food and Drug Administration, United States Department of Agriculture, according to an announcement by Dr. J. J. Durrett, chief of drug control. The administration also plans extensive research into the nature and pharmacological properties of both digitalis tincture and the crude drug. Preliminary research has convinced the department that digitalis preparations are liable to deteriorate on the shelves of drug stores or warehouses to some such degree as was proved of fluid extract of ergot. Upon the strength of the ergot study, the administration recommended to the United States Pharmacopoeial Revision Committee that ergot extracts be put up in smaller packages. This extended work was made possible by a \$75,000 increase in Congressional appropriations for enforcement of the food and drug law. Other plans for the year include continuation of work on alleged antiseptics and so-called remedies. After the above had been announced the Department of Agriculture released a story telling of the conviction of Brewer and Company, wholesale druggist of Worcester, for misbranding tincture of digitalis and other drug products. The company was fined \$500 by Judge James A. Lowell of the Federal Court of Boston. It was the second conviction for the company, it having previously been prosecuted for violation of the food and drug act and fined \$100 on its plea of *nolo contendere*.

The regular monthly meeting of the Trudeau Club will be held Thursday evening, January 8, 1931, at 8:15 o'clock, in the auditorium of the St. Louis Medical Society. The program will consist of a demonstration of interesting roentgen ray plates and discussion. Members of the State Medical Association are invited to attend.

In the proceedings of the Southeast Missouri Medical Association published in our December issue it was erroneously stated that Dr. M. H. Shelby, Cape Girardeau, had been reelected president for 1930-1931, and that Dr. J. Lee Harwell, Poplar Bluff, had been elected vice president for the same period. The officers elected for 1930-1931 are: President, Dr. J. Lee Harwell, Poplar Bluff; vice president, Dr. David E. Smith, Bonne Terre; recording secretary, Dr. W. S. Love, Charleston (reelected); corresponding secretary, Dr. E. J. Nienstedt, Blodgett (reelected); treasurer, Dr. Paul Baldwin, Kennett (reelected).

Surgeon General H. S. Cumming of the United States Public Health Service recently submitted a report to Congress pointing out that during the last year there has been a constant interchange of sanitary information by the Public Health Service with other nations of the world through the International Office of Public Hygiene at Paris, the Pan American Sanitary Bureau, and other agencies. According to information received, the fiscal year ending June 30, 1930, was a relatively favorable year. The general death rate was less for that period than for the preceding year and approached the unusually low death rate of the year ending June 30, 1927. Of minor importance with regard to the total number of cases but of interest because of the nature and severity of the disease was the epidemic of psittacosis with a case fatality of 35 to 40 per cent for between 350 and 400 cases. With the exception of a few central provinces of India the cholera situation was relatively favorable. Cholera was reported in the Philippine Islands and at the close of the year cases were increasing in Manila and the islands in the central part of the Archipelago. Plague appeared in central African centers near the Mediterranean trade routes but Northern India has shown constant improvement since 1924. Yellow fever was reported from the west coast of Africa and from Brazil and Colombia but typhus fever cases were decreased. Smallpox increased in a number of countries including India, England, Wales, and the United States.

Dr. A. A. Werner, St. Louis, was the guest of the Marion County Medical Society at its meeting of November 7 held at Hannibal and spoke on "The Menopause, Artificial and Natural," illustrated with lantern slides. Dr. Werner was sent by the Postgraduate Committee of the State Medical Association.

The John H. Bothwell Memorial Hospital, Sedalia, a city institution, was opened November 1, 1930. Patients who had been cared for in the building formerly known as St. Mary's Hospital were moved into the new building on that day.

On November 20, sixty-seven members of the medical profession attended a dinner in honor of the opening of the new institution. Dr. Guy Titsworth, Sedalia, Councilor for the Seventeenth District of the State Medical Association introduced Dr. E. F. Yancey, Sedalia, dean of the Sedalia medical profession he having practiced a longer number of years than any other Sedalia physician. Dr. Yancey acted as toastmaster and in a welcoming address told how the hospital was made possible by the gift of the late John H. Bothwell of \$100,000 in cash, \$50,000 in stock, and a trust fund of approximately \$150,000, and bonds voted by the citizens.

Dr. J. Frank Harrison, Mexico, president-elect of the State Medical Association, congratulated the profession on the building and on the harmony that exists among the doctors in the vicinity.



Dr. Jabez N. Jackson, Kansas City, formerly of Sedalia, characterized the new hospital as in keeping with the "golden era of medical progress."

Dr. Emmett P. North, St. Louis, complimented the medical profession of Pettis County by saying that among them were some who had blazed the way in medicine and surgery.

Dr. Ralph W. Holbrook, Kansas City, talked on "The High Cost of Medical Care." Other speakers were Drs. Joseph Love, Springfield; J. C. B. Davis, Willow Springs; D. F. Manning, Marshall; L. J. Schofield, Warrensburg;



R. Seaton Tyler, Sweet Springs; W. A. Braecklein, Higginsville; J. A. Logan, Warsaw; A. J. Gunn, Versailles; J. F. Jolley, Mexico; N. I. Stebbins, Clinton; L. L. Latham, California; and M. T. Collins, Sedalia.

The hospital is a three story building of forced brick in mingled shades and trimmed with Carthage stone. There are sun porches on each floor and attractive entrances and driveways around the grounds.

A maximum of 120 beds may be used. At present the hospital is equipped with sixty-five beds, eight children's beds and twelve bassinets. On each floor is a nurses' station and diet kitchen. There are lounging rooms, two operating rooms equipped with modern apparatus, a maternity section, roentgen ray room, dark room and laboratory.

The boiler room, fuel rooms, three large storage rooms, kitchen, two dining rooms and morgue are in the basement. The first, second and third floors have terrazzo floors and woodwork of birch finished walnut. The furniture, bought with a fund subscribed by the residents of the community, is dark-colored metal. Everything has been purchased with a view to the patient's comfort as well as to the most scientific treatment.

The management of the hospital is under the supervision of a hospital board appointed by the mayor. Cooperating with the board is an advisory committee composed of three physicians, Drs. F. B. Long, A. L. Walter, and M. P. Shy, of Sedalia.

The former city hospital, abandoned because it was too small, remains on the same ground as the new building and will be used for a nurses' home.

The following articles have been accepted for New and Nonofficial Remedies:  
Abbott Laboratories

Gold Sodium Thiosulphate—Abbott  
Eli Lilly & Co.

Erysipelas Antistreptococcic Serum—Lilly  
(Concentrated Globulin)

Medical Arts Laboratory, Inc.

Antirabic Vaccine, Semple Method  
National Drug Co.

Antipneumococcic Serum, Type I  
Ointment Scarlet Red Biebrich 8 Per Cent  
Typhoid-Paratyphoid A Vaccine

Parke, Davis & Co.

Ventriculin

Richards Pharmacal Co., Inc.

Richards Psyllium Seed

E. R. Squibb & Sons

Diphtheria Toxoid—Squibb, twenty 1 c.c.  
ampule packages

Diphtheria Toxoid—Squibb, two 1 c.c. ampule packages

Normal Horse Serum, one 50 c.c. vial package

Ragweed Pollen Allergen Solution—Squibb  
(3 vial treatment package)

Timothy Pollen Allergen Solution—Squibb  
(3 vial treatment package)

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## OBITUARY

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### GEORGE WASHINGTON HEUMAN, M.D.

Dr. George W. Heuman, St. Louis, a graduate of St. Louis University School of Medicine, 1903, died at his home of pneumonia, December 3, 1930, aged 48.

Dr. Heuman was born in St. Louis and received his preliminary education at the Smith Academy. He began his practice in St. Louis after his graduation in medicine and after several years in general practice he specialized in urology. Dr. Heuman was a member of the St. Louis Medical Society, a Fellow of the American Medical Association and of the American Urological Association.

Dr. Heuman is survived by his widow, Mrs. Margaret Heuman; his mother, Mrs. Minnie Heuman, and a sister, Mrs. Sylvia Schofield.

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### LOUIS PHILLIP BARNETT, M.D.

Dr. Louis P. Barnett, St. Louis, a graduate of the University of Arkansas School of Medicine, 1927, died as the result of a fall in his home, December 2, 1930, aged 29.

Dr. Barnett was born in Sedalia, Missouri, and received his preliminary education in the University of Missouri and interned in the St. Louis City Hospital. He practiced in Auxvasse for a short time before locating in St. Louis. He was physician for the board of education of University City and was active in civic affairs. He was a member of the Callaway County Medical Society.

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### LESLIE BROWN MILLER, M.D.

Dr. Leslie B. Miller, Kansas City, a graduate of the University Medical College of Kansas City, 1907, died of heart disease at his home, December 5, 1930, aged 46.

Dr. Miller was born at Lenexa, Kansas, and received his preliminary education at the Kansas State Normal. He had practiced medicine in Kansas City for approximately twenty-four years and had won the esteem and confidence of his confreres. He was a member of the Jackson County Medical Society and a Fellow of the American Medical Association.

### GEORGE ALLEN RUSH, M.D.

Dr. George A. Rush, Kansas City, a graduate of the University Medical College of Kansas City, 1907, died in his office, November 18, 1930, of poison taken because of despondency over his health. He was 47 years old.

Dr. Rush received his early education at Millville, Missouri. He practiced in Neosho before locating in Kansas City. Dr. Rush served overseas as a captain in the infantry medical corps. He was a member of the Jackson County Medical Society and a Fellow of the American Medical Association. He is survived by his widow, Mrs. Pearl Rush, and a daughter, Miss Frances Rush.

### WINN FORT MORROW, M.D.

Dr. Winn Fort Morrow, Kansas City, a graduate of Missouri Medical College, St. Louis (now Washington University School of Medicine), 1878, died at his home, November 29, 1930, aged 76.

Dr. Morrow was born in Macon County, Missouri, and received his preliminary education at McGee College, College Mound, Missouri. Upon completing his medical education he began practice at LaPlata and moved to Kirksville in 1883 and four years later established an office in Kansas City. Dr. Morrow served as secretary of the state board of health under Gov. Alexander Dockery for four years after which he resumed private practice.

Dr. Morrow was elected an Honor Member of the Jackson County Medical Society, June 21, 1922, and was a Fellow of the American Medical Association. Dr. Morrow was one of Kansas City's pioneers in the medical field and through his forty-three years of practice he won many friends who mourn their loss. He is survived by his widow, Mrs. Jean B. Morrow; a son, W. Lloyd Morrow, Los Angeles; a daughter, Mrs. Noel F. Gilbirds, Kansas City; and a half sister, Mrs. Henry Miller, Callao.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

### COLE COUNTY MEDICAL SOCIETY

The Cole County Medical Society at its meeting of December 9, 1930, elected the following officers to serve for 1931: President, Dr. H. I. Taylor, Jefferson City; vice president, Dr. Ross Hopkins, Jefferson City; secretary-treasurer, Dr. James A. Hill, Jefferson City; delegate, Dr. W. A. Clark, Jefferson City; alternate, Dr. S. P. Howard, Jefferson City.  
J. A. HILL, M.D., Secretary.

### FIVE-COUNTY MEDICAL SOCIETY

During the year of 1930 the Five-County Medical Society, consisting of the counties of Butler, Dunklin, New Madrid, Pemiscot and Stoddard, carried out a plan for postgraduate work at home in cooperation with the ideas of the State Medical Association. It was determined by the group to hold four meetings annually and the months of March, June, September and December were selected for the time of meeting with the second Tuesday of the month for the set day. A member of each of the five counties was elected to draw a number from a hat to determine the order of entertainment by the county.

The first postgraduate program was held in Kennett in March with two splendid essays on obstetrics. The second meeting was held at Bernie in June with three very fine papers on pediatrics. The third meeting was held at Hayti in September with two wonderful lectures on internal medicine. The last meeting of the year was held at Poplar Bluff, December 10, with three highly interesting papers on surgery and one on eye injuries. In March, 1931, it will be the turn of the New Madrid County Medical Society to act as host.

All four of the meetings have been voted the essence of high success for keeping practitioners abreast of the times. We recommend that other counties combine in a similar group for bringing men of the teaching, research and expert specialist type before a large body of practitioners. The smallest number of doctors present at any meeting was forty-five, the largest sixty-seven, weather conditions being the cause of the smaller number.

The success of this last quarterly meeting at Poplar Bluff on December 10, has ended the year beyond the expectations of any one. The Butler County Medical Society as host came up to its usual well known record for hospitality and entertainment. The evening was started off with a motion picture at the Criterian Theater by courtesy of the Butler County doctors on "Traumatic Surgery." This was something rather new to us and thoroughly appreciated for its usefulness by the members of the group.

We then proceeded to the basement of the Christian Church where forty-five doctors registered for the meeting. Without further delay, we were served a most excellent banquet by the ladies of that church. Dr. J. Lee Harwell, Poplar Bluff, president of the Butler County Medical Society, presided in his unique way. Dr. E. J. Goodwin, St. Louis, Secretary of the State Medical Association, to whom we owe much for the success of these meetings, was called on for a talk. He too briefly expressed his thanks for the excellent cooperation of the group in making these meetings a real success. His talk and his presence at our meeting were thoroughly appreciated.



Without further ado, Dr. Harwell called the meeting to order and proceeded with the program as planned. The first number, "Fractures and Dislocations," was presented by Dr. Charles F. Sherwin, St. Louis. The doctor handled this voluminous subject in a brief period of time in a most pleasing and practical manner, illustrating as he went along with lantern slides. He brought out the great usefulness of the roentgen ray and fluoroscope in handling fractures and dislocations. His common sense methods in handling these injuries were convincingly described in such excellent ways with illustrations that any practitioner could grasp the usefulness of his methods. Too little discussion was given this subject but most enthusiastic interest was shown.

The second paper entitled, "Surgery of the Hand," was presented by Dr. Edwin C. Funsch, St. Louis. This everyday condition he divided into three types and brought out the cardinal points in each with differential diagnostic signs. In the treatment he especially emphasized the value of hot saline soaks and proper indications for incision. He especially stressed the uselessness of antiseptics and the sequels that often occur when depending upon them. This paper was discussed fairly generously but with less enthusiasm than it deserved.

The third lecture, "Hemorrhoids, Fistula and Fissure," by Dr. Warren R. Rainey, St. Louis, was masterfully handled. He stressed the great value of a good history, the careful observation of the patient's attitude while taking a history. He emphasized the importance of assuring the patient that he would not suffer any pain on examination thereby securing the full cooperation of the patient. His calm, patient, gentle manner in lecturing impressed on us the same gentleness of examination. Many valuable points were described in the treatment of rectal conditions that more than repaid us for the time given to attending the meeting. In the discussion some humorous suggestions came to light but they caused other suggestions of worthy treatment for serious distressing conditions.

The Society was very sorry that we were not honored with the presence of Dr. W. C. Gayler, St. Louis, President of the State Association. However, we were very fortunate in having Dr. Emmett P. North, St. Louis, to act as "pinch hitter" for Dr. Gayler. Dr. North read a very short but highly instructive and much appreciated paper on "Eye Injuries." He brought out many points of interest worth while for the protection of the physician and for better results in the patient.

On the whole this meeting was considered one of the most valuable sessions we have ever had. The New Madrid County Medical Society will act as host at the next meeting, the place to be selected by that Society at a later date. The program will consist of two lectures on gynecology by prominent specialists.

It is with great regret that Dr. T. C. Allen, Bernie, corresponding secretary of the Five-County Group, could not be present. Dr. Allen has had this group close to his heart and has expended a great deal of energy in making it a success. We sincerely hope he will be with us at the next meeting to "pep up" the activities of the evening.

Any doctor in good standing in his county medi-

cal society is cordially invited to be present at our March meeting.

The Five-County Group extends its thanks to Poplar Bluff, the ladies of the Christian Church, the essayists, and the visitors for making this meeting a glorious success.

J. D. VAN CLEVE, M.D., Acting Secretary.

### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held October 24, 1930, in the Public Library, Springfield. In the absence of the president and secretary, Dr. O. C. Horst, Springfield, and Dr. W. E. Handley, Springfield, acted in these respective capacities. Eleven members attended.

The scientific program consisted of a "Symposium on Fractures," by Drs. E. M. Fessenden and Wallis Smith, of Springfield.

#### Meeting of November 14, 1930

The Society met in the Springfield Public Library, November 14, 1930, at 8 o'clock, with twenty-three members present. The guests of the Society were: Drs. E. E. Glenn and D. W. Tripodi, of Mount Vernon, and Dr. William A. Hudson, Detroit.

The secretary read a letter from Dr. W. A. Dellzell, Springfield, thanking the members of the Society for their services during the recent illness and death of his wife. The secretary was instructed to file this letter with the Society's records.

Dr. E. E. Glenn, Mount Vernon, superintendent of the State Tuberculosis Sanatorium, read an interesting paper on "Massive Atelectasis in Pulmonary Tuberculosis and Its Treatment by Artificial Pneumothorax."

Dr. D. W. Tripodi, of the same institution, gave a number of reports of tuberculous cases treated by artificial pneumothorax and some cases complicated by empyema and lung carcinoma. Both papers were illustrated by roentgen ray pictures.

Dr. William A. Hudson, Detroit, who is doing thoracic surgery, spoke briefly regarding pulmonary tuberculosis from a surgical standpoint.

#### Meetings of December 12, 1930

The regular meeting of the Greene County Medical Society was held in the Public Library, Springfield, December 12, 1930. The minutes of the previous meeting were read and approved. There were thirty-three members present.

This being the last meeting of the year the program consisted of a discussion of medical economics and the election of officers.

The following officers were elected to serve for the ensuing year: President, Dr. Otto C. Horst, Springfield; vice president, Dr. Urban J. Busiek, Springfield; secretary, Dr. J. Newton Wakeman, Springfield (reelected); treasurer, Dr. Walter E. Handley, Springfield (reelected). Delegate, Dr. Paul F. Cole, Springfield; alternate, Dr. C. W. Russell, Springfield. Dr. John W. Willimas, Jr., Springfield, was elected a member of the board of censors.

Dr. S. W. Tickle, Springfield, was elected an Honor Member. Dr. Tickle has been a member of the Greene County Medical Society since 1909. He is seventy years of age and has been practicing since 1890.

J. NEWTON WAKEMAN, M.D., Secretary.

### MARION COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Marion County Medical Society was held November 7, 1930,



in the Mark Twain Hotel, Hannibal. Preceding the scientific program dinner was served to twenty-five physicians of Hannibal and surrounding communities. The guest of the Society was Dr. A. A. Werner, St. Louis, who came to us through the courtesy of the Postgraduate Committee of the State Medical Association.

The president, Dr. W. F. Francka, Hannibal, called the meeting to order at 8:35 p. m. and introduced Dr. Werner, the speaker of the evening.

Dr. Werner spoke on "The Menopause; Artificial and Natural." He gave a very thorough discourse on the menopause which he said could be termed more definitely "ovarian hypofunction." In the discussion he brought out facts relating to the other endocrine glands, each of which he took up in turn giving its relation to and effect on ovarian secretion. He illustrated his talk with a multitude of lantern slides.

Dr. Werner's lecture was received with real interest and was discussed actively upon numerous angles.

#### Meeting of December 5, 1930

The annual election of officers of the Society was held on Friday, December 5, 1930, which resulted in the following being elected: President, Dr. C. W. Hamlin, Palmyra; vice president, Dr. E. R. Motley, Hannibal; secretary-treasurer, Dr. F. E. Sultzman, Hannibal; censor for three years, Dr. J. C. Chilton, Hannibal. Delegate, Dr. C. W. Hamlin, Palmyra; alternate, Dr. E. R. Motley, Hannibal, holding over from 1929.

H. B. GOODRICH, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The November meeting of the Nodaway County Medical Society was held Friday, the 14th, in the lecture room of the St. Francis Hospital, Maryville. The meeting was called to order by the president, Dr. L. E. Dean, Maryville, at 7:45 p. m. The following members were present: Drs. Chas. T. Bell, J. A. Bloomer, K. C. Cummins, Leslie E. Dean, C. P. Fryer, C. V. Martin, R. C. Person, H. S. Rowlett, Jack Rowlett, and W. M. Wallis, Jr., of Maryville; W. M. Hindman, Burlington Junction; Chas. D. Humbert, Barnard. Visitors: Dr. R. B. H. Gradwohl, St. Louis; Dr. R. B. Bridgeman, Hopkins; Drs. Earl Braniger, W. B. Owen, Roy V. Canon, E. L. Enis, and D. J. Thomas, dentists, of Maryville; and several Sisters from the hospital staff. The minutes of the meeting of October 10, 1930, were read and approved.

Dr. R. B. H. Gradwohl, who came as the speaker of the evening by courtesy of the Postgraduate Committee of the State Association, was introduced by the president and read a paper on "An Introduction to the Schilling Blood Count," illustrated with prepared charts and lantern slides. He brought much material that was comparatively new and of extreme interest to his audience. Dr. Gradwohl's handling of this difficult subject was that of a master and his hearers expressed much appreciation for his able presentation of this remarkable new advance in medical science. The lecture was discussed thoroughly. Many questions were asked which Dr. Gradwohl answered in detail, stressing some of the spectacular diagnostic points which the Schilling differential count can make.

On motion of Dr. K. C. Cummins, seconded by Dr. R. C. Person, the meeting adjourned at 9:15 p. m.

Several of the members attended a luncheon and round table discussion with Dr. Gradwohl following the meeting.

#### Meeting of December 14, 1930

The Society met December 14 in the lecture room of the St. Francis Hospital, Maryville. The president, Dr. L. E. Dean, Maryville, called the meeting to order at 7:45 p. m. with the following members present: Drs. Chas. T. Bell, J. A. Bloomer, L. E. Dean, C. V. Martin, R. C. Person, Jack Rowlett, and Wm. Wallis, Jr., of Maryville; R. B. Bridgman and Chas. W. Kirk, of Hopkins; Eugene L. Crowson, Pickering; Chas. D. Humbert, Barnard; W. M. Hindman, Burlington Junction; Clarence J. Garding, Conception Junction. Drs. J. Milton Singleton and W. W. Buckingham, of Kansas City, Dr. Earl Braniger, a dentist of Maryville, and several Sisters of the hospital staff were present as invited guests.

Dr. Chas. D. Humbert, secretary, reported in detail on the Society's activities during the last year. Ten regular meetings have been held at which eleven papers were read by out-of-town essayists. At these meetings the attendance has varied from a minimum of six to a maximum of fifteen. Three new members have been added to the roster and four members have been lost, making the total membership at the close of 1930 twenty-seven. Six of the twenty-seven are delinquent in the payment of dues.

The treasurer's report showed a balance on hand January 1, 1930, of \$46.80. During the year \$276 in dues were received. The expenditures for the year were \$294.95; leaving a balance on hand of \$27.85.

Dr. C. V. Martin moved that the reports of the secretary-treasurer be accepted. The motion was seconded by Dr. C. T. Bell and carried.

The meeting then proceeded to the election of officers for 1931. Dr. K. C. Cummins, Maryville, was nominated by Dr. Chas. D. Humbert, for the office of president. Dr. C. V. Martin moved that the nominations close and that the secretary be instructed to cast the unanimous vote of the Society electing Dr. Cummins president. The motion seconded by Dr. Chas. W. Kirk, Hopkins, was carried and the secretary cast the Society's ballot as instructed.

Dr. Chas. W. Kirk, Hopkins, was nominated, by Dr. R. C. Person, for the office of vice president. Dr. Chas. T. Bell moved that the nominations close and that Dr. Kirk be elected by acclamation. The motion seconded by Dr. Clarence C. Garding was carried and Dr. Kirk was duly elected vice president.

Dr. Chas. D. Humbert, Barnard, was nominated for the office of secretary-treasurer by Dr. Chas. T. Bell. Dr. C. V. Martin moved that the nominations be closed and Dr. Humbert be elected by acclamation. Dr. W. M. Wallis, Jr., seconded the motion, which carried, and Dr. Chas. D. Humbert was duly elected secretary-treasurer.

Dr. Chas. D. Humbert, Barnard, was nominated as delegate to the annual meeting of the State Association by Dr. W. M. Wallis, Jr. Dr. C. T. Bell moved that the nominations be closed and Dr. Humbert be elected by acclamation. The motion was seconded by Dr. W. M. Hindman, and carried and Dr. Humbert was declared elected delegate.

Dr. L. E. Dean was nominated as alternate delegate by Dr. W. M. Wallis, Jr. Dr. Jack Rowlett moved that the nominations be closed and that Dr. Dean be elected by acclamation.

The motion was seconded by Dr. W. M. Wallis, Jr., and carried, and Dr. Dean was declared elected alternate delegate.

Copies of Dr. R. B. H. Gradwohl's paper on "An Introduction to the Schilling Blood Count," which was read before the Society at its meeting of November 14, were distributed to all members present with Dr. Gradwohl's compliments.

The meeting was then turned over to Drs. J. Milton Singleton and W. W. Buckingham, of Kansas City, who had come as lecturers for the evening through the courtesy of the Postgraduate Committee of the State Association. Dr. Singleton presented an extensive essay on "Postnatal Care." He stressed the importance of routine of hygiene exercise and treatment during the puerperium with special attention to hospital convalescents.

Dr. Buckingham gave an extemporaneous lecture on "The Surgical Treatment of Tuberculous and Nontuberculous Pulmonary Suppurations." He gave accounts of the latest works in thoracic surgery and illustrated his talk with lantern slides and charts.

Both of these papers were enthusiastically received and were actively discussed.

The meeting adjourned at 11:30 p. m., and about half of the members present enjoyed a luncheon at the Puritan Cafe with Drs. Singleton and Buckingham.

CHAS. D. HUMBERD, M.D., Secretary.

## RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The regular meeting of the Randolph-Monroe County Medical Society was held December 9, 1930, in the Merchants' Hotel, Moberly. A banquet was served preceding the meeting to the following members and their wives and guests: Dr. J. C. Lyter, St. Louis; Dr. and Mrs. O. O. Ash, Dr. and Mrs. P. C. Davis, Dr. and Mrs. C. H. Dixon, Dr. C. K. Dutton, Dr. and Mrs. Thos. S. Fleming, Dr. and Mrs. H. C. Griffiths, Dr. F. L. Harms, Dr. and Mrs. L. E. Huber, Dr. Max E. Kaiser, Dr. L. E. Leusley, Dr. and Mrs. J. Maddox, Dr. and Mrs. M. A. McMurry, Dr. and Mrs. O. K. Megee, Dr. and Mrs. L. O. Nickell, Dr. M. R. Noland, Dr. and Mrs. S. T. Ragan, Dr. R. D. Streeter, and Mayor Rolla Rothwell, of Moberly; Dr. and Mrs. D. A. Barnhart and Dr. J. D. Hammett, of Huntsville; Dr. and Mrs. George W. Hawkins and Dr. and Mrs. D. H. Miller, of Salisbury; Dr. and Mrs. R. A. Woods, Clark.

Following the dinner the meeting was called to order by the president, Dr. L. O. Nickell, Moberly. The following officers were elected for 1931: President, Dr. D. A. Barnhart, Huntsville; vice president, Dr. O. K. Megee, Moberly; secretary-treasurer, Dr. Thos. S. Fleming, Moberly (reelected). Delegate, Dr. C. H. Dixon, Moberly; alternate delegate, Dr. R. A. Woods, Clark. Censor for three years, Dr. J. Maddox, Moberly.

The Society adopted a motion expressing sympathy to Dr. F. L. McCormick, Moberly, in his recent illness.

The Society went on record as opposing Senate Bill No. 255 in Congress pertaining to infancy and maternal hygiene and the secretary was instructed to send telegrams to Senators Hawes and Patterson at Washington.

After the regular order of business the members returned to the dining room and enjoyed a

record produced on the electric radiola, by the secretary, as follows:

Good evening members and wives of the Randolph-Monroe County Medical Society. If you will give me your attention I will first call the roll.

Following the roll call the record continued.

Sorry so many are absent; however, I bid you welcome.

It gives me great pleasure to greet you on this, the evening of our annual banquet. I am glad to see that so many are interested in the welfare of the profession. We are here to promote good fellowship as well as to improve our minds scientifically. Pleasant social contact one with another is much to be desired. It is by means of such gatherings that we are able to meet on common ground and to discuss those problems which confront us.

All must admit that there are many problems that not only influence us in the management of our patients, but if handled properly go to create harmony and understanding between fellow practitioners. It is a well-known fact that if a doctor neither reads nor hears other men talk on different phases of medicine he is likely to get one-sided and, more important still, he is likely to get a false sense of security about his knowledge of practice. If he does read and attend these meetings, especially the regular monthly gatherings, he will not only obtain knowledge of medicine and surgery but a knowledge of the business side of his practice. It so often happens that the doctor who does not meet with other doctors develops a distrust of his competitor. Therefore, it is well for us to realize that no one of us is infallible and that no one of us can know everything on a given subject. There are occasions when timely advice plays a most important part in our daily work and any of us will profit by heeding it on certain occasions.

Sometimes it is best to play our game as Bobby Jones does golf. He has the reputation of never watching the other man hit the ball. He plays against par which is considered perfect golf. No matter how great his failure to place his hit or how far advanced his opponent may be he disregards those conditions and does the best he can. His even temperament at all times and his respect for his opponent has commanded the admiration of all sportdom.

So it might be well in our association with one another to practice as Mr. Jones plays. Let us attend to our own business, avoid criticism of our competitor, praise him when occasion arises, and usually successful cooperation will be assured.

And now to the faithful partner of the practicing physician. Every physician owes much to his wife. Her's is the position of the unsung heroine. She must be the guardian angel of the sick, receive and record appointments, abate criticism of her husband, and most of all she must graciously submit to the fact that her husband belongs to the public and that only after the public's demand has been met can she hope to have him in the family circle, and then always with doubtful security. She must be willing to live in an atmosphere of uncertainty and confusion.

You have been listening to a record program by Station RMCS located in the main dining room of the Merchants' Hotel, Moberly, Missouri. This is John Doe speaking. Good night.

Dr. J. Curtis Lyter, St. Louis, was the guest speaker of the evening through the courtesy of the Postgraduate Committee of the State Association, and gave an address entitled "Is Life Worth Living?"

Mrs. O. O. Ash, Moberly, gave a report on the work of the Woman's Auxiliary during 1930.

Miss Helen Nickell, daughter of Dr. L. O. Nickell, Moberly, gave several selections on the piano.

THOS. S. FLEMING, M.D., Secretary.

## ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held at the home of Dr. William F. O'Malley, Kirkwood, on Wednesday afternoon, November 12, 1930. The president, Dr. R. B. Denny, Creve Coeur, called the meeting to order with the following members present: Drs. H. N. Corley, R. E. Gaston, A. C. Hofsommer, of Webster Groves; R. B. Denny, Creve Coeur; C. H. Denny and J. D. Stoelze, of Clayton; R. L. Foster, Helen Gage, J. D. Hayward and L. C. Obrock, of St. Louis; F. P. Dunn and F. P. Knabb, Valley Park; F. J. Petersen, Richmond Heights; J. H. Sutter, University City; F. A. Dill and E. E. Tremain, of



Maplewood; W. F. O'Malley, Kirkwood. Visitors: Drs. Emmett P. North, and F. C. E. Kuhlman, and Drs. Brand, Compton, and Kemp, of St. Louis.

Dr. Emmett P. North read an interesting paper on "Eye Injuries and Their Relationship to the Practitioner."

Dr. J. D. Hayward talked on "Fundamentals in the Diagnosis of the Acute Abdomen."

Both papers were enjoyed and well received.

The application of Dr. Helen Gage, St. Louis, was read and approved and she was elected to membership.

E. E. TREMAIN, M.D., Secretary.

## VERNON-CEDAR COUNTY MEDICAL SOCIETY

At a recent meeting of the Vernon-Cedar County Medical Society the following officers were elected for the year 1931: President, Dr. E. H. Liston, Nevada; secretary, Dr. J. T. Hornback, Nevada. Delegate, Dr. C. B. Davis, Walker; alternate, Dr. T. T. O'Dell, Nevada.

J. T. HORNBACK, M.D., Secretary.

## JOINT MEETING OF VERNON-CEDAR AND BATES COUNTIES MEDICAL SOCIETIES

A joint meeting of the Vernon-Cedar and Bates county medical societies was held Thursday evening, November 20, 1930, at State Hospital No. 3, Nevada. These counties have been much more closely united since the completion of Highway No. 71 and a greater number of physicians can more easily attend the meetings now, therefore, it was decided to hold meetings this winter at the county seat of each respective county. Everyone is urged to attend the meetings and make the experiment a successful one. All physicians and their wives who attended the meeting were guests of the Vernon-Cedar County Society at a 6 o'clock dinner.

The scientific program followed the dinner with the Bates County Society officers in charge, the speakers being furnished by the Postgraduate Committee of the State Association.

Dr. T. H. Aschmann, Kansas City, spoke on "Postnatal Care." The subject was presented in an able and pleasing manner and was discussed by Drs. G. H. Thiele and E. N. Chastain, of Butler; and J. T. Hornback, Nevada.

Dr. O. F. Bradford, Kansas City, very appropriately followed with a talk on "Early Care of the New-Born." This paper covered the diseases encountered by general practitioners early in the life of an infant and reviewed a few of the more common conditions. Points of therapy were especially stressed by Dr. Bradford.

Dr. J. T. Hornback, Nevada, presented a case for examination and diagnosis. The presiding officer appointed a committee to examine the patient and report its findings.

The report was given by Dr. G. H. Thiele, Butler, chairman of the committee, who said the condition had been diagnosed as obstruction to the lymphatics of the left arm resulting from pressure of enlarged glands of the axilla due to a cancer of the breast which had been removed a few years ago. This was a very interesting case. Each physician sees a great number of cases which would be just as interesting as this one. The presentation of such cases stimulates

interest. The secretary would welcome clinical material for future meetings.

Those present were: Drs. G. H. Thiele, E. N. Chastain and J. S. Newlon, of Butler; C. W. Luter, Adrian; Dr. Orr, Harwood; C. B. Davis, Walker; C. T. McConnell, Richards; T. D. Combs, Bronaugh; F. L. Martin, J. T. Hornback, T. B. Todd, W. S. Love, W. L. Davis and F. M. Grogan, of Nevada.

The Woman's Auxiliary met in conjunction with the Society but plans to hold its own meeting at the time the Society meets in Butler, December 11. This meeting will be under the auspices of the Vernon-Cedar County Medical Society and a good program is assured.

C. W. LUTER, M.D., Secretary.

## WOMAN'S AUXILIARY

### OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.  
2nd Vice President, Mrs. H. B. Goodrich, Hannibal.  
3rd Vice President, Mrs. R. S. Kieffer, St. Louis.  
4th Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.  
Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

## ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. C. C. Cummings, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Linn.....	Mrs. Ola Putman, Marcelline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

## MISCELLANY

### NATIONAL INSTITUTE OF HEALTH

On May 26 the President attached his signature to the act establishing the National Institute of Health. This bill, sponsored by Senator Joseph E. Ransdell, was approved by the American Medical Association and actively supported by practically every organization devoted to the advancement of human welfare. In accordance with the act, the Hygienic Laboratory of the Public Health Service, with its long record of accomplishments, is merged into a new institution with well nigh unlimited opportunities for scientific research.

Originally attached to the marine hospital in New York as a small clinical office, the Hygienic Laboratory was founded in 1887, when the world heard with astonishment of the menace of germs as agents



of disease. The laboratory passed under a variety of names until 1901, when Congress gave it a place in governmental nomenclature by appropriating a small sum for an experimental building and directing that the institution should "investigate matters pertaining to the public health." This broad authorization has produced singularly happy results. The first large undertaking was to put the commercial production of vaccines, serums and analogous products on a safe and scientific basis; in cooperation with responsible business concerns, a system of inspections and licensing was established. So thoroughly has this plan been developed that today the practicing physician in the most remote section of the country has ready access to dependable biologic products for administration to his patients.

The Hygienic Laboratory's contributions to the betterment of human health speak for themselves. The essential cause of pellagra was worked out at the laboratory and its field stations. This clearly pointed the way to both prevention and cure, so that at present this disease may be said to be no longer a medical problem but an economic one. Early studies of anaphylaxis, a word which, by the way, was coined at the Hygienic Laboratory, brought the phenomenon of hypersusceptibility to the attention of research workers throughout the world. The investigations into the nature of measles, conducted some years ago, resulted in cutting the period of quarantine from twenty-one to ten days, with a consequent gain in school and earning capacity. The recent discovery of a vaccine against Rocky Mountain spotted fever has proved of great financial value to the infected areas of the Northwest. The recognition, etiology and prophylaxis of tularemia represent the only instance in which American physicians alone have solved the complete entity of a disease. A review of the activities of the Hygienic Laboratory in medical research would comprise many columns of print and would reach into the fields of chemistry, pharmacology, zoology, the biologic sciences and a wide range of subjects intimately concerned with the mysteries of health and disease.

The National Institute of Health, therefore, comes into a rich inheritance. It assumes at once the potentialities of a well organized institution with a number of problems under investigation and many others awaiting attack. Functioning under the Treasury Department through the Public Health Service, the institute is placed in a position both conservative and authoritative. The Secretary of the Treasury is authorized to accept, either by will or otherwise, donations from philanthropic sources for the purpose of carrying forward studies, investigations and research in the fundamental problems of diseases of man and matters pertaining thereto. Funds so contributed are in the close control of the government and should be wisely administered for the public good. Donations of \$500,000 or over in aid of research will be acknowledged permanently by the founding of suitable memorials to the donors. A system of fellowships is provided for the utilization of such funds. Already the Chemical Foundation has contributed \$100,000 to provide for one or more fellowships in chemistry.

Many critics have expressed doubt as to whether or not the government should undertake research supported by private contributions from commercial agencies. It will require the most stringent safeguards to insure absolutely scientific study, honest, unrestricted reporting of results and proper distribution of the fruits of discovery. The development of such procedure should be among the first steps taken in furthering the work of the institute.

Provision is made for expansion in the way of buildings and for the appointment of scientists, who may be chosen for the prosecution of investigations anywhere in the world. Of great importance is a provision that the facilities of the institute shall be available to health authorities of states, counties or municipalities for purposes of instruction and investigation.

The array of problems awaiting solution is imposing. The so-called constitutional diseases, infections of remote or unknown etiology, cellular proliferation and inhibition and nutritional studies will be taken up at once. The aspects of chemistry in relation to health and disease comprise a field for fundamental research to which the institute has already turned its attention. Biologic processes applied to insect vectors of disease and to principles of immunity and susceptibility are inviting lines of research. Scores of specific problems might be mentioned. The National Institute of Health may well become a responsible organization in the field of medical research, contributing discoveries of untold benefit to man.—*Jour. A. M. A.*, Oct. 18, 1930.

## MEMORY SNAPSHOTS OF EUROPE

SNAPPED BY DR. R. C. HARRIS

ST. LOUIS

The steamer *Hamburg* glided over glassy smooth seas to the port of Cuxhaven. Deck games, movies and promenading had occupied the passengers between meals offered in such tempting manner that girth control was forgotten and most of the passengers added three to five pounds to their weight during the trip.

The many seekers of cures at the various spas could easily be distinguished from American buyers and the bored globe-trotters making their nth crossing.

The customs was a mere formality and after a three-hour ride we were in the City of Hamburg whose hospitals and universities and the world-famous Hagenbach Tier Garden were well worthy of inspection. But the impression that remains is the beauty of the city itself located on the banks of the Alster which divides the city into two sections, twin gems in a rare setting.

Berlin was next, its boulevards, parks and architecture reminiscent of an American city. Its wartime barracks are deserted or converted into apartment buildings housing thousands of people, many of the apartments flying the red flag of the Communist. The many parks are filled with the unemployed and a state of unrest is apparent. A spark would start a conflagration and watchful waiting for a torch bearer could be sensed.

The University of Berlin has about 13,000 students with several thousands in the medical department and allied branches. About 1,100 are of foreign birth.

I was impressed with the extensive use of physiotherapy and its branches in the hospitals, medical schools and clinics that I visited. Lamps of all descriptions included the ultraviolet light used in the treatment of pulmonary and arterial diseases and diseases of malnutrition. In the various heart clinics the complete examinations and follow-ups of cases are very interesting. The use of the cardiometer for determining the frequency and rhythm of the heart beats over a long period of time, roentgen rays, arthodiagraphic measurements of the heart and complete cardiographic tracings are followed by hydrotherapeutics, graded exercises and

suitable medication for each case. One interested in laboratory and research work can find here a fertile field. Complete serological examinations of all cases are made with complete records and new theories are worked out. Some work is now being done with the liver functional examination along with the usual tests. The rose bengal dye test for the examination of the functional activity of the liver is being studied extensively.

An instrument known as a halometer and invented I believe by a Dr. Eve, shown me by a senior intern at one of the larger hospitals, is being used for rapid differentiation of the various anemias by measuring the size of the red corpuscles.

In the asthmatic division of the Children's Hospital they were making use of passive transfer (Walser method) skin tests. This test is especially useful in the examination of young children and babies. I was told that a few c.c. of blood are taken from the child and small amounts of the defibrinated serum injected at suitable sites in a near relative, preferably the mother. After two or three days tests are made (intradermal) with protein solutions and reactions watched for, the results being the same as if the child were tested. The injected area, I was told, remains passively sensitized for a month or six weeks so that additional tests can be made from time to time.

A great deal has been done with immunization and preventive medicine and things are still being accomplished in this line. Physical culture is being especially encouraged since the World War and there are probably eighty thousand different athletic and sport associations that are competing with other countries in these things. Hiking clubs, especially among the children, bowling teams, tennis, gymnastics, calisthenic exercises and football are found in all parts of Germany wherever there is sufficient space to erect a suitable stadium.

The quaint City of Dresden does not disappoint as to the daintiness which one has learned to associate with its name. Its shops filled as they are with choice ceramics and china are a joy to visit. Its fountains and the architecture of its buildings make a delightful picture.

Munich, after Dresden, is as a phlegmatic Teutonic Hausfrau to a gold and blue shepherdess with an ornate crook. Munich is Germany's most typical German town. Its world-renowned breweries and Rathskellers are much in evidence. In many places the beer is served in earthen jars and although of unknown percentage it seems to mellow but not to enslave. No evidence of intoxication was observed anywhere. Most of the tourists here were en route to Oberammergau to witness the Passion Play where the wonderful acting had for its rival in interest the 11,000 people from every part of the world costumed in the dress peculiar to their native lands.

Munich is the Mecca of the tourists en route to the various spas in Germany, of which there are about forty-five, all famous the world over. Among the few here mentioned is Baden-Baden in the Black Forest. It is fashionable, open all the year and caters to patients suffering from gouty and rheumatic diseases and diseases of the respiratory organs.

Mergantheim with a thermal spring of 160 to 180 degrees Fahrenheit is a wonderful resort. The grape cure in spring and fall draws a large quota of visitors. Its three noted springs attract those afflicted with liver, stomach and intestinal complaints as well as the obese.

Radium-Bad Obershlema in Saxony is the youngest and the most wonderful radium spring in the

world. Here the nervous cases and those suffering from malnutrition seek benefit.

Vienna is on the banks of the Danube whose waters we found to be a drab gray instead of the blue immortalized by Strauss. Old and beautiful Vienna, as a city of arts, music, and sciences is too well known to elaborate on. Statues of its famous musical composers adorn its boulevards. The castles and gardens of Queen Maria Theresa are visited by all tourists. The hospitals and clinics are institutions that draw medical students and physicians from all over the world.

The railroads of Lucerne are electrified by power generated from the water of the Alps. Switzerland is now negotiating to furnish power to its European neighbors. Every inch of ground here is utilized. Even the underbrush of the forests is cleared out daily for fuel thus giving the natural woods a park-like aspect. Farm equipment is primitive. The natives rise at dawn to turn the hay so it will dry in the early morning sun. The government exacts a heavy tax of 20 to 30 per cent, for although not involved in the World War the expense of maintaining neutrality with heavy border patrols is being paid for. The City of Lucerne with its chateaus nestling on the hills and overlooking its sparkling lakes is a dream of beauty. Many cases of goiter are noticed among its inhabitants, possibly due to the large number of surrounding lakes and the low iodine content. It is a day's trip to Como, the Italian Riviera. Its blue sky and the deeper blue of its lake, the dotting green cedars, the bright-hued flowers make it a jewel box of vivid hues.

From Lucerne to Nice is a day's ride through tunnels and over Italian soil overlooking the Mediterranean. A drive over the famous Cornish road leads to Monte Carlo and its casino. The place itself is dwarfed by the patrons gathered from the hindmost quarters of the globe, all seeking to woo Lady Luck.

Nearby is Grasse where tons of flower petals are distilled daily to furnish oils and essences for the perfumers of the world.

Paris is the finale of the trip,—the woman's town, the style center of the world. The buyers flock to it as bees to a honey-pot. The shop keepers grumble at the slowed up market but the unemployment situation is much commented upon with about seven hundred people seeking employment. Food stuffs and hotels command high prices. The city itself shows rapid strides at modernization during the last decade.

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## TRUTH ABOUT MEDICINES

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KIDDIE KANNED VEGETABLES, FRUITS AND CEREALS (Kiddie Kanned Foods, Inc., Seattle, Wash.). Canned cooked and sieved vegetable soup, oat porridge, wheat porridge, spinach, tomatoes, carrots, apples and peaches. They contain no added salt or sugar. To prepare these products the vegetables and fruits are washed, cooked under pressure to soften for sieving. The hot sieved foods are packed in cans, sealed and processed. Crushed oats and wheat are cooked under pressure, sieved, packed hot, and processed.

### NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:



**McKESSON'S VITAMIN CONCENTRATE OF COD LIVER OIL.**—A cod liver oil concentrate having not less than eleven times the minimum vitamin A potency of cod liver oil, U. S. P., and not less than eleven times the vitamin D potency of a potent cod liver oil used as a standard. The product possesses properties similar to those of cod liver oil so far as these depend on the fat soluble vitamin content of the latter. McKesson and Robbins, Inc., Bridgeport, Conn. (Jour. A. M. A., November 1, 1930, p. 1347.)

**MALTINE WITH COD LIVER OIL AND IRON IODIDE.**—This product is composed of maltine, 70 per cent, cod liver oil, 30 per cent, and ferrous iodide, 0.44 Gm. per hundred c.c. (2 grains to each fluid-ounce). Maltine is a preparation essentially similar to extract of malt, U. S. P., but it contains 3.88 per cent of alcohol, is prepared from malted barley, oats and wheat; its vitamin B<sub>1</sub> and B<sub>2</sub> content and its starch converting power is controlled by assay. Maltine with cod liver oil and iron iodide contains in 100 c.c. from 23,000 to 25,000 vitamin A units as determined by the U. S. Pharmacopeia assay and its vitamin D potency is controlled by assay. Maltine Company, Brooklyn, N. Y.

**DIPHTHERIA TOXOID.**—A diphtheria toxoid (New and Nonofficial Remedies, 1930, p. 364) prepared from diphtheria toxin of which the L+ dose is 0.2 c.c. or less. The toxin is treated with formaldehyde and is tested for antigenic power. The finished product is adjusted to contain in 2 c.c. enough of the toxoid for one immunization treatment. It is marketed in packages of one immunization treatment. Lederle Laboratories, Inc., Pearl River, N. Y. (Jour. A. M. A., November 15, 1930, p. 1505.)

**AMPOULE STERILE SOLUTION DEXTROSE, U. S. P., 5 Gm., 10 c.c.**—Each ampule contains dextrose, U. S. P., 5 Gm., in distilled water to make 10 c.c. E. S. Miller Laboratories, Inc., Los Angeles.

**AMPOULE STERILE SOLUTION DEXTROSE, U. S. P., 10 Gm., 20 c.c.**—Each ampule contains dextrose, U. S. P., 10 Gm., in distilled water to make 20 c.c. E. S. Miller Laboratories, Inc., Los Angeles.

**AMPOULE STERILE SOLUTION DEXTROSE, U. S. P., 25 Gm., 50 c.c.**—Each ampule contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 c.c. E. S. Miller Laboratories, Inc., Los Angeles.

**DEXTROSE (d-Glucose) UNBUFFERED AND WITHOUT PRESERVATIVE, 10 Gm., 20 c.c. Ampul.**—Each ampule contains dextrose, U. S. P., 10 Gm., in distilled water to make 20 c.c. H. K. Mulford Co., Philadelphia.

**DEXTROSE (d-Glucose) UNBUFFERED AND WITHOUT PRESERVATIVE, 25 Gm., 50 c.c. Ampul.**—Each ampule contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 c.c.; accompanied by an ampule of 2 c.c. of a buffer solution. H. K. Mulford Co., Philadelphia.

**DEXTROSE (d-Glucose) UNBUFFERED AND WITHOUT PRESERVATIVE, 25 Gm., 50 c.c. Double End Vial.**—Each double end vial contains dextrose, U. S. P., 25 Gm., in distilled water to make 50 c.c.; accompanied by an ampule of 2 c.c. of a buffer solution. H. K. Mulford Co., Philadelphia.

**DEXTROSE (d-Glucose) UNBUFFERED AND WITHOUT PRESERVATIVE, 50 Gm., 100 c.c. Ampul.**—Each ampule contains dextrose, U. S. P., 50 Gm., in distilled water to make 100 c.c.; accompanied by an ampule of 4 c.c. of a buffer solution. H. K. Mulford Co., Philadelphia.

**VENTRICULIN.**—Desiccated, defatted, hog stomach. —It is assayed clinically by observation of the reticulocyte response, the standard being an increase of red blood cells at the rate of about one

hundred thousand cells per cubic millimeter per week when the product is administered to patients suffering from pernicious anemia. Stomach tissue of animals has been shown to contain a principle capable of stimulating the bone marrow to form immature red cells in large numbers. When, during the first ten to fifteen days' treatment with ventriculin, a satisfactory rise in reticulocytes occurs, this is evidence that effective and progressive blood regeneration is taking place. Ventriculin is supplied in the form of a powder in vials containing 10 Gm. Parke, Davis & Co., Detroit. (Jour. A. M. A., November 22, 1930, p. 1589.)

## FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

**PET UNSWEETENED EVAPORATED MILK (Pet Milk Co., St. Louis).**—An unsweetened evaporated milk complying with the U. S. Department of Agriculture definition and standard for evaporated milk. The composition of the product is: total solids, 25.5 to 26.5 per cent; ash, 1.5 to 1.6 per cent; protein, 7.0 to 8.2 per cent; fat, 7.8 to 8.2 per cent; lactose, 9.5 to 10 per cent. The product may be used for cooking, baking and other purposes as is ordinary milk.

**ALACTA (Mead Johnson & Co., Evansville, Ind.).**—A dried, partially defatted milk designed for infant feeding formulas in which low fat content is desired. The approximate composition of the product is: moisture, 1.5 per cent; mineral salts, 7 per cent; milk fat, 12 per cent; protein, 33 per cent; lactose, 46.5 per cent. Diluted alacta may be employed in milk formulas in which a low milk-fat content is desired. (Jour. A. M. A., November 15, 1930, p. 1505.)

## PROPAGANDA FOR REFORM

**COFFEY-HUMBER TREATMENT FOR CANCER.**—Recent developments in the Coffey-Humber treatment of cancer emphasize the fact that the history of investigations of new methods for the treatment of cancer is marked by the wreckage of dozens of scientific reputations, by the bodies of patients, and by bitter controversy among scientific men. Such conditions establish again the importance of provision within organized medicine for careful study and judgment of new methods before they are given circulation to the medical profession or to the public. Had the proponents of the Coffey-Humber method seen fit from the first to follow established custom in the introduction of their technic and their results, had they consulted the Council on Pharmacy and Chemistry as to the proper method of introducing a new proprietary, they might have avoided all the acrimony, the criticism, and certainly all the notoriety that has been their lot. (Jour. A. M. A., November 1, 1930, p. 1349.)

**HORMONE AND CANCER.**—The effort to influence the growth of cancer by various organ extracts is being widely made at present. Logically it might be profitable to inquire why such trials are being made since every pathologist sees cancer growing freely in those organs whose hormonal activity is high. The work of Bischoff and his colleagues should be repeated with a tumor that does not spontaneously recede and, if the results are the same, should close the discussion on the possible therapeutic action of extracts from the group of organs tested. (Jour. A. M. A., November 1, 1930, p. 1350.)

**SODIUM 2-Oxo-5-Iodo-Pyridine-N-Acetate (Introduced as Uroselectan).**—The Council on Pharmacy



and Chemistry publishes a preliminary report on sodium 2-oxo-5-iodo-pyridine-N-acetate (also designated as sodium-5-iodo-2-pyridon-N-acetate) a new substance for use in the radiographic visualization of the urinary tract which was introduced under the name Uroselectan. The Council reports that the product is a definite chemical substance which promises to be an advance in the radiographic visualization of the urinary tract, though its indications, advantages and limitations are at the present time not fully established. The Council considers the product suitable for experimental use by those who are versed in the technique of urologic examinations. It publishes a concise and carefully considered statement of the introduction of the drug and the evidence for its use, prepared for the Council by Drs. Braasch and Bumpus. (Jour. A. M. A., November 8, 1930, p. 1425.)

**AVERTIN.**—The Council on Pharmacy and Chemistry reports that Avertin was submitted for consideration in February of this year; that it recognizes the fact that the product presents certain desirable properties but that definite action concerning its recognition is postponed pending investigation of certain of its side actions now being conducted. For the information of the medical profession the Council submits a report concerning the present status of the drug. Avertin is tribromethanol. It was introduced in Germany in 1926, to be used alone for rectal anesthesia or to be supplemented by other narcotics, including morphine and ether. Later Avertin was offered in a solution, 1 c.c. of which contains 1 Gm. of Avertin dissolved in amylene hydrate (tertiary amyl alcohol). This solution has been the subject of several hundred reports. After reviewing the reported advantages and disadvantages the Council concludes: though the present evidence indicates that Avertin may prove valuable as a means of initiating narcosis but not for complete narcosis, the Council decided not to admit the drug to New and Nonofficial Remedies. (Jour. A. M. A., November 8, 1930, p. 1427.)

**NONVOLATILE SUBSTANCES AS ANESTHETICS.**—The Council on Pharmacy and Chemistry has accepted a barbital derivative for oral and rectal use as a preliminary to surgical anesthesia. Experimentally this product has also been administered intravenously but such use is far from safe and the manufacturer is not marketing the product for intravenous use. Now the Council publishes a preliminary report on Avertin which substance has been proposed not only for initiating anesthesia but also as the chief means of inducing unconsciousness, to be supplemented when necessary by a small amount of an inhalation or local anesthetic. The Council concludes that Avertin may prove valuable as a means of initiating narcosis, but that it is not proved to be a safe agent for complete narcosis, either by itself or combined with a volatile anesthetic. These two products illustrate a modern tendency in anesthetics. A paper by Lendle seems to show that neither Avertin nor the barbital derivative "Pernocton" is a satisfactory solution of the problem. The products so far proposed for so-called basal anesthesia are hypnotics or sedatives and should be used as such. They cannot be safely used for complete anesthesia and can be safely used in combination with other agents for the production of complete anesthesia only by those thoroughly experienced in the administration of anesthetics and closely familiar with the studies of the use of nonvolatile agents for anesthesia. Thus far their intravenous use must be considered unsafe. (Jour. A. M. A., November 8, 1930, p. 1430.)

**SOMNOFORM.**—Yandell Henderson writes that he has recently received from the Stratford-Cookson Co. an advertisement of "Somnoform," stated to have the formula: chloride of ethyl, 83 per cent; chloride of methyl, 16 per cent; bromide of ethyl, 1 per cent. Henderson believes that if the claim is true that "the record of Somnoform for safety is without equal" the record must be regarded as a pure piece of good fortune for two at least of the ingredients have a toxicity which renders them unfit for use as anesthetics. In 1919 the Council on Pharmacy and Chemistry declared Somnoform inadmissible to New and Nonofficial Remedies because in the absence of acceptance evidence showing its exceptional safety and value, the claims made for it were held to be unwarranted and because the name of the mixture is not descriptive of its composition. (Jour. A. M. A., November 8, 1930, p. 1445.)

**NATURE OF THE SUBSTANCE IN LIVER ACTIVE IN PERNICIOUS ANEMIA.**—The search for the "active principle" which renders liver potent in the treatment of pernicious anemia has resulted in the isolation of an active crystalline salt demonstrated to be clinically potent in pernicious anemia. It is a compound of beta-hydroxyglutamic acid and hydroxyproline. Both of these substances possess the characters of protein derivatives, the mode of their linkage remains to be ascertained. (Jour. A. M. A., November 15, 1930, p. 1509.)

**THE DUGDALE LIBEL SUIT.**—Frederick Dugdale, M.D., of Lowell and Boston had his license to practice medicine in Massachusetts revoked April 18, 1929, for "gross misconduct in the practice of his profession." The Lowell (Mass.) *Sun* published an account of the hearing connected with the revocation proceedings and stated that the charges against Dugdale grew out of the alleged professional misconduct on his part in the treatment of a patient who subsequently died of cancer. As a result of this publication Dugdale brought suit against the publisher of the *Sun*, charging libel and demanding damages. The case came to trial and the jury brought in a verdict in favor of the newspaper. For some years Dugdale advertised as a "specialist" in "skin, blood and nervous diseases" and operated a mail order "rheumatism cure"; later he was one of the disciples of the Abrams cult. For some years Dugdale had his own "cancer cure." Still later, as the Koch "cancer cure" became a money-maker, Dugdale became a Koch disciple and in the libel suit the Koch "treatment" figured largely. (Jour. A. M. A., November 15, 1930, p. 1523.)

**THE ETIOLOGY OF GINGER PARALYSIS.**—Within the past year a peculiar form of paralysis has afflicted many persons, particularly throughout the Midwestern or Southwestern states. Evidence has accumulated that the malady is closely associated with the drinking of fluidextract of ginger. The latter has been sold extensively since the introduction of the Volstead Act, for beverage purposes, because of a ruling of the Prohibition Bureau to the effect that the official fluidextract of ginger is a nonpotable beverage, thus removing the restriction from its sale. It was concluded from the evidence that an adulterated and poisoned product was being circulated last winter. An investigation was undertaken by the United States Public Health Service and this has shown that the paralysis was caused by tricresyl phosphate present in some fluidextracts of ginger as an adulterant. (Jour. A. M. A., November 29, 1930, p. 1672.)

**SOME MISCELLANEOUS "SPECIALISTS."**—Three schemes have recently been worked, on the profes-

sion and the public, respectively. Each was operated by a physician: Dr. F. J. James, Paris, Illinois, circularized physicians, offering three outstanding prescriptions: No. 1 for renal dropsy; No. 2 for acid stomach and fermentation and No. 3 an "absolute specific" for acne. Dr. John W. Nelson, Jamestown, N. Y., circularized laymen under the name, "A. E. Daley," offering to sell for \$16 sexual advice and instruction and "facts of great importance" found as a result of an "intensive study of the anatomy and function of our sexual organ." Dr. B. J. Cline, Poplar Bluff, Mo., offered to sell prescriptions: One "absolutely controls Whooping Cough"; another for acute or chronic poison ivy inflammation; a third for sciatica; a fourth is an enema for the treatment of pneumonia; a fifth is for hay fever and a sixth is for venereal warts. Such incidents as these do not redound to the credit of the medical profession. (Jour. A. M. A., November 29, 1930, p. 1688.)

**INCREASED POTENCY OF VIOSTEROL PREPARATIONS.**—The Wisconsin Alumni Research Foundation informed the Council on Pharmacy and Chemistry that the accumulated clinical experience with viosterol has shown that better results in the treatment of rickets are secured when a dosage of vitamin D is used larger than that originally recommended and that the maximum limits of safety as to the amount of vitamin D that can be used has now been more definitely determined than was the case when preparations of viosterol were first put on the market. Instead of increasing the dosage of the present products, the Foundation and its licensees determined to increase the potency of the preparations. It was decided to increase the potency of viosterol in oil so that instead of having 100 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 250 times that potency, and, provided the Council should agree, to increase the potency of cod liver oil with Viosterol so that instead of having 5 times the potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 10 times that potency. The Foundation announced that these preparations of increased potency would be placed on the market beginning with October first. The Council on Pharmacy and Chemistry announces that it has accepted the changes of potency determined on by the Foundation and has changed the name of viosterol in oil 100 D to viosterol in oil 250 D and the name of cod liver oil with viosterol 5 D to cod liver oil with viosterol 10 D and has continued the acceptance of the viosterol preparations already accepted, under the new names. (Jour. A. M. A., October 4, 1930, p. 1021.)

**HYPERVITAMINOSIS WITH VITAMIN D.**—The uncertainty as to the possible toxicity of an agent so uniquely potent as viosterol (irradiated ergosterol) awakened misgivings regarding the desirability of advocating its widespread use. These misgivings prompted the limitation of the recommended dosage within modest bounds. The pendulum of dosage had swung so far in the direction of caution that it now seems advisable to increase somewhat the concentration of viosterol in oil and in cod liver oil with viosterol and accordingly the Council on Pharmacy and Chemistry reports that preparations of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 250 times that potency, and that the preparations of cod liver oil with viosterol formerly having 5 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 10 times that potency. (Jour. A. M. A., October 4, 1930, p. 1023.)

**ORAL IMMUNIZATION AGAINST PNEUMOCOCCI.**—Thus far, laboratory studies concerning oral immunization against specific infections have not been encouraging. Most of the suggested oral vaccines apparently are rapidly destroyed or denatured in the gastro-intestinal tract. Oral immunization will presumably be limited to the relatively few vaccines sufficiently resistant to gastro-intestinal denaturation. The most resistant group of micro-organisms are apparently the pneumococci. Recently, successful oral vaccines against pneumococci are reported to have been developed by Dr. Victor Ross. It is to be hoped that Ross's encouraging researches will not be handicapped by premature clinical or commercial exploitation. (Jour. A. M. A., October 4, 1930, p. 1024.)

**THE STROOPAL FRAUD.**—For many years a nostrum known as Stroopal has been sold on both sides of the Atlantic as a cure for cancer. The product apparently originated in Germany. For some years it was exploited from London and was exposed by London *Truth* nearly twenty years ago. According to Gehe's Codex, Stroopal is composed of the powdered leaves of *Teucrium Scordium*, otherwise known as water germander or wood garlic. For at least seventeen years, Stroopal has been exploited in a small way from Chicago. Recently, Stroopal seems to have been advertised under the name of the Stroopal Company, 2101 Belmont Ave., Chicago. On August 13, the postal authorities issued a fraud order against the Stroopal Company and notified the Chicago postmaster to return all letters addressed to the Stroopal Company to the original senders. (Jour. A. M. A., October 4, 1930, p. 1037.)

**THE PAVIA "CANCER CURE."**—During the past year, editors of newspapers and magazines have received from one Burroughs F. Perry, of 221 Shoreland Arcade, Miami, Florida, a piece of mimeographed publicity material headed, "Cancer and Goiter Cure Is Asserted." The statement is to the effect that one Charles Pavia has discovered a wonderful cure for cancer and goiter. Further, according to Mr. Perry's material, the Pavia formula "feeds the cancer germ, satisfies it and destroys it by self-satisfaction." The main exploiter of Pavia's remedy seems to be one R. B. Fisher, whose stationery announces him to be an attorney; he, too, does business from 221 Shoreland Arcade, Miami. At the request of Pavia and Fisher, Dr. Charles D. Cleghorn, president of the Dade County (Miami, Fla.) Medical Association, checked up on cases treated with the Pavia remedy and reported that in three cases examined the treatment had been quite without effect. Dr. Cleghorn reports that the description of the formula, as given him, was "vegetable oils, camphor, menthol and turpentine in a base of animal fats." Chemists of the A. M. A. Chemical Laboratory reported that the remedy was a brownish-yellow ointment with a terebinthinate odor, indicating the presence of turpentine, menthol and camphor. It may well be that Mr. Pavia is sincere in his exploitation of the remedy. However, a worthless cancer remedy sincerely exploited may prove just as fatal as the crudest of cancer cure swindles. (Jour. A. M. A., October 11, 1930, 1116.)

**ORAL USE OF OVARIAN PRODUCTS IN MENOPAUSE.**—Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely striking and often nil to the careful observer. Extensive clinical experience has failed to establish the value of the desiccated preparations administered orally. The Council on Pharmacy and Chemistry has omitted all desiccated ovary preparations for oral administration because long



extended clinical use has failed to demonstrate the efficacy of the marketed brands. (Jour. A. M. A., October 11, 1930, p. 1119.)

**THE ADVERTISING OF THE DENTIFRICE.**—The early part of the twentieth century may be interesting historically for the fact that it witnessed the apotheosis of the tooth brush, the tooth paste and the mouth wash. So far as mouth washes are concerned, their virtues may lie in a slight astringency or alkalinity, in the mildly antiseptic influence they exert for a brief period, or more probably in the fact that they contain enough water to provide a lavage appealing to the organoleptic senses. "Halitosis" gave to Listerine a sales impulse that no other mouth wash has ever been able to equal. The fact that the combination of substances included in Listerine is relatively ineffective and will not cure halitosis did not lessen the sales impulse. Recently, the Food and Drug Administration has cast a critical eye over the claims for antiseptic value made for various mouth washes and gargles. It is currently reported that the owners of all these bringers of gold are rushing hither and thither to the laboratories searching for substances that really are antiseptics and that can be added to their concoctions without changing taste or color—the important qualities—that the claims may be justified. Recently, dentifrices have been widely exploited with various claims. A half dozen assorted chemists and the commissioner of health of New York assert that low surface tension means that a tooth paste will penetrate better between the teeth. The claim of special value because of low surface tension in connection with the selling of any tooth paste is one hundred per cent hokum. Any mixture of soap, glycerin and chalk, such as is available in many tooth pastes, would be equally endowed with a low surface tension. The council on dental therapeutics of the American Dental Association is now making efforts to secure restriction of the claims for dentifrices and physicians should do all that they can to aid the American Dental Association in this campaign. (Jour. A. M. A., October 25, 1930, p. 1267.)

**ATROPHY OF THE LIVER DUE TO CINCHOPHEN PREPARATIONS.**—When cinchophen was introduced into therapeutics (reinforced by the trade name "Atophan"—the tophi remover) its striking effect on the elimination of uric acid captured the clinical imagination. It was soon seen, however, that Atophan belied its name for the tophi refused to be removed. The drug was found, however, to be an effective analgesic. Various esters and derivatives were advertised extensively for the benefit of those who do not like the flavor of cinchophen and for the benefit of the manufacturers who could establish a monopoly on each little change. Cinchophen became a household remedy in the belief that it could do no harm. In 1923 evidence became available that the drug was causing fatal hepatitis. Since there are many other analgesics about as effective as cinchophen in many cases, and without this insidious danger, the use of the drug should be avoided whenever possible. Unfortunately, this is not simple, for a physician may be easily led into prescribing cinchophen when he does not know it. He may avoid it under the official names of cinchophen and neocinchophen or the original, therapeutically misinforming names of Atophan and Novatophan but can be expected to keep in mind all the noninforming names which manufacturers invent? This illustrates the importance of the rule of the Council on Pharmacy and Chemistry which permits not more than one trade name—that applied by the dis-

coverer. The rule protects those that use New and Nonofficial Remedies but can do little for others. The case is even worse for the patent medicines that are advertised to the public. While physicians, now that they have been warned will restrict the use of cinchophen and watch for the first signs of danger, cinchophen preparations may be sold to the public in mixtures of secret composition. (Jour. A. M. A., August 2, 1930, p. 345.)

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy.

(W. D. Peattie, Inc., Cleveland, Ohio) are designed for "dilating the sphincter muscles" and "for continuous irrigations" particularly in "the use of extreme temperatures in (irrigating) liquids." It is claimed for the apparatus (1) that complete dilation and thorough cleansing is accomplished; (2) that the vaginal types permit long uninterrupted douching; (3) that the rectal types permit long uninterrupted irrigation; (4) that they are made of material which permits the use of irrigating liquids of high or low temperature; (5) that the apparatus may be taken apart and sterilized thoroughly; (6) that it is easily tolerated by the patient; (7) that any soluble antiseptic may be used; and (8) that the irrigators or tips can be made a part of any irrigating apparatus. The Council on Physical Therapy believes that these claims are reasonable and not unwarranted. (Jour. A. M. A., August 2, 1930, p. 343.)

**SORENSEN THERAPEUTIC INHALER No. 922.**—The Sorensen Therapeutic Inhaler No. 922 (C. M. Sorensen Co., Inc., Long Island City, N. Y.) is stated to be an electrical instrument giving warm, dry air for the vaporization of inhalants. The device is constructed to heat air in sufficient volume to permit of deep and continued breathing direct from the applicators, thus providing the mucosa with a continuous supply of warm air or of warm medicated vapor. It is designed to operate on a 100 to 125 volts, alternating or direct current, and its power consumption is less than 15 watts.

**SORENSEN THERAPEUTIC HEATER No. 921.**—The Sorensen Therapeutic Heater No. 921 (C. M. Sorensen Co., Inc., Long Island City, N. Y.) is similar to the Sorensen Therapeutic Inhaler. It is different in that the cold air, instead of being drawn through a heating chamber, is forced through by some type of air compressor. It is claimed to be of value in the treatment of those diseases of the middle ear where the application of warm dry air, or warm medicated vapor, is indicated. (Jour. A. M. A., August 9, 1930, p. 413.)

**SUNLIT ULTRAVIOLET GLASS.**—The window glass known as "Sunlit" (Semon Bache & Co., New York) is stated to be a glass that transmits the biologic ultraviolet rays of the sun. According to a test conducted by the Bureau of Standards this glass does transmit an appreciable percentage of the solar rays which have been shown to have antirachitic properties. (Jour. A. M. A., August 16, 1930, p. 484.)

**MALTESE X-RAY LEAD GLASS.**—Maltese X-Ray Lead Glass (Semon Bache & Co., New York) is a lead glass designed for X-ray protective shields. Measurements of the protective qualities of several samples were made by the Bureau of Standards and were satisfactory. (Jour. A. M. A., September 20, 1930, p. 865.)



## BOOK REVIEWS

**THE AUTONOMIC NERVOUS SYSTEM.** By Albert Kuntz, Ph.D., M.D., Professor of Anatomy in St. Louis University School of Medicine. Illustrated with 70 engravings. Philadelphia: Lea & Febiger. 1929. Price \$7.00.

This volume is the fruit of years of work on this subject by the author. It contains a very complete account of the anatomy and physiology of the autonomic nervous system and some of the pharmacology. Many original researches by the author are incorporated but the work of others is fully discussed, including an interesting analysis of the conceptions of Eppinger and Hess. The section on pathology reflects the paucity of our present knowledge on that subject.

The surgery of the autonomic nervous system is considered in an interesting chapter. Some of the diseases usually found in textbooks under the heading "Diseases of the Sympathetic Nervous System" and generally included in this group on exceedingly questionable evidence, are not described by Kuntz.

This is an invaluable work and essential to all who would increase their knowledge of the autonomic nervous system. B. L. E.

**A SYNOPSIS OF MEDICINE.** By Henry Letheby Tidy, M.A., M.D., B.Ch. (Oxon.), F.R.C.P. (Lond.) Physician to St. Thomas's Hospital, etc. Fifth edition, revised and enlarged. New York: William Wood and Company. 1930. Price \$6.00.

This handy-sized little book is very familiar to me. I have seen it in the hands of medical students for many years. My earliest reaction to it, as is natural for a schoolmaster toward anything small and useful, was antagonistic. As years have gone on and I have asked students to read from it at the bedside or in the clinic in the presence of a patient, that opinion was changed. It is an ideal book of its kind. It is packed with judiciously selected information. The rich scholarship, the ripe experience which lie behind its compilation, are evident and increasingly astonishing. It invites collateral reading far more than a more extensive book would and hence is likely to be more valuable to the student.

The fifth edition has been thoroughly revised and brought completely up-to-date. For the inevitable sixth edition a few illustrations, radiograms, electrocardiograms, etc., are recommended. L. C.

**A TEXTBOOK OF PATHOLOGY.** Edited by E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis, Minn. Illustrated with 316 engravings and 2 colored plates. Philadelphia: Lea & Febiger. 1930. Price \$8.00.

Dr. Bell and his associates in the University of Minnesota have produced this book essentially as a textbook for medical students. One trouble with several of our best textbooks of pathology is that they have grown so big they are impracticable as textbooks for medical students. The present volume has been kept within the space of six hundred odd pages so that it should easily be managed by the student who is serving his first term in pathology. While about the usual ground necessary to the subject of pathology is covered, an attempt is made to keep to the newer terminology of pathologic conditions. The author regrets, as many have before

him, the inability of the clinician and the pathologist to get together on a standard nomenclature of disease.

One feels at times the compression necessary to keep the book within practical bounds, but sufficient references to literature are included to allow the student a follow-up on any subject he cares to pursue. The book is well printed and well illustrated.

R. L. T.

**THE PATHOLOGY OF THE EYE.** By Jonas S. Friedenwald, A.M., M.D., F.A.C.S., Associate in Pathological Ophthalmology at the Johns Hopkins University, etc. Illustrated with 253 figures, mainly microphotographs from the Pathological Collections of the Wilmer Ophthalmological Institute and the Army Medical Museum, by Helenor Campbell. New York: The Macmillan Company. 1929. Price \$4.50.

This book, written by a well known author whose opinion is respected by ophthalmologists, discusses the pathology of the eye in a way that is not too technical. The clinical side is considered sufficiently to make the book of real interest and the author includes much of his own investigative work. It is a desirable addition to the medical library and is especially recommended to the specialist. J. W. M.

**LABORATORY MEDICINE. A Guide for Students and Practitioners.** By Daniel Nicholson, M.D., Member of the Royal College of Physicians, London; Assistant Professor of Pathology, University of Manitoba; Assistant in Pathology, Winnipeg General Hospital. Illustrated with 108 engravings and a colored plate. Philadelphia: Lea & Febiger. 1930. Price \$6.00.

With all the books now extant on laboratory medicine (which means clinical pathology) it takes something different to get by. This book has it. For practical working purposes, as well as for ready reference this is the best arranged text the reviewer has encountered.

First of all, this book is not padded with innumerable useless laboratory tests. Only the tests that have proved most valuable in actual practice and that can be done with a minimum of apparatus, are included. The text is written so clearly that any one who can read, who has the material required and who has had any experience with laboratory procedures, can readily perform and interpret the majority of the tests. Under each new procedure an outline of routine examination or principle of the test is given in large, bold face type. Details of the test are given in ordinary light face type. Finally, the interpretation is given in bold, black type. Many of the illustrations used are new and useful charts are included.

This should prove a most valuable working book for students, practitioners and technicians

R. L. T.

**PHYSIOLOGICAL CHEMISTRY. A Textbook and Manual for Students.** By Albert P. Mathews, Ph.D., Carnegie Professor of Biochemistry, The University of Cincinnati. Fifth edition. Illustrated. New York: William Wood and Company. 1930. Price \$7.00.

This volume we are told in the preface is a textbook for students of biological chemistry written

with the hope that it raises more questions than are answered by the author.

One is impressed anew with the fact that the substances dealt with in biological chemistry are not only complex within themselves but are made more complex in their association with the living organism. Also, that the methods of attempting to establish facts about these substances and their association with the living organism, however detailed and intricate, are necessarily crude.

The enlargement of this edition over previous ones is of greatest clinical interest in those portions dealing with internal secretions, vitamins and recent studies in metabolism.

The book is well written and well edited. The bibliography is condensed, referring only to articles of essential research. The author has aided in developing his purpose by stating at short intervals throughout the book those problems which he considers have been most inadequately solved through previous research. L. R. P.

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**CANCER OF THE LARYNX.** By Sir St. Clair Thomson, M.D., F.R.C.S., F.R.C.P., Emeritus Professor of Laryngology in Kings' College Hospital, and Lionel College, M.B., F.R.C.S., Surgeon to the Throat Department, St. George's Hospital. New York: The Macmillan Company. 1930. Price \$7.00.

This volume, just about large enough to slip into an overcoat pocket, contains in its first 68 pages a review of the fundamentals of diagnosis, direct and differential, of larynx cancer. Various sections have subheadings, such as "History, Frequency, and Etiology," "Sites and Course," etc., but this part of the book is essentially a compactly written means of diagnosis of cancer of the larynx. In the remaining pages we have in the main a clearly written technical description of the operations of laryngofissure and laryngectomy, the two operations that have emerged in the author's opinion from a long surgical evolution as an effective means of radical cure. These two operations and other less hopeful ones are described and illustrated in great detail. Treatment by radiation is also considered and its limitations are discussed.

The text throughout gives briefly the historic evolution of surgery of cancer of the larynx and draws from this history the author's reasons for his present views of the suitability of given cases for operation and the indications for a particular operation in a given case.

In printing and illustrations this monograph excels. The skill in choosing and organizing the material is what one would expect from the standing of the author and his previous contributions to this specialty. J. D. C.

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**DOCTORS AND SPECIALISTS.** A Medical Revue with a Prologue and a Good Many Scenes. By Morris Fishbein, M.D., Editor of the *Journal of the American Medical Association* and of *Hygeia*, the Health Magazine. With illustrations by Dan Layman. Indianapolis: The Bobbs-Merrill Company.

Isn't it great to have a man like Dr. Fishbein in our profession? One day he is the cold-eyed editor turning down our highly scientific articles and overwhelming us with his own erudition in evaluation of the most complex forms of medical research. Then we find him on the golf course telling us how to correct our slice and sink out put; or at the bridge

table taking his partner out of a one club bid with a little slam. Again he is the delightful Mr. Pepys with his naïve confessions of disaster and success; or the school-teacher of hygiene telling us in ten volumes how to keep our feet dry and to avoid halitosis without spending our money for patent medicines.

Now comes another rabbit out of his bottomless hat. This time it is the delightful book "Doctors and Specialists." True it is that many of us have a sense of humor, but how few of us can express it. There is no malice in this book, only good clean satire. As the author says, "To me all of these pictures are caricatures, exaggerating the human frailties and striking palpably only at human nature." Here we meet the "old time practitioner," "the modern medico," the "surgeon" and all the specialists, not forgetting the "nurse" and other by-products of medicine.

Dr. Fishbein spares nobody, but he is not mean about it. It is the type of candor so costumed in a maze of wit that no one is stripped entirely naked. Even the chiropractor is left with a fragment of his B. V. D's. As for the nurse, the author prefers her with all her clothes on. Score again for the wisdom of the author.

If the sale of this book doesn't reach a hundred thousand copies the medical profession isn't doing its duty. It's a book one can buy for his home, his waiting room, and for all his friends, and if the doctors once get it started the book will just naturally sell itself. R. L. T.

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**ROSE AND CARLESS' MANUAL OF SURGERY.** For Students and Practitioners. By Cecil P. G. Wakeley, F.R.C.S. Eng., F.R.S. Edin., Erasmus Wilson Lecturer, Royal College of Surgeons of England, etc., and John B. Hunter, M.C., M. Chir. Cantab., F.R.C.S. Eng., Assistant Surgeon, King's College Hospital, etc. Thirteenth edition. New York: William Wood and Company. 1930. Price \$11.00.

If it is possible to write our present knowledge of surgery in one volume Wakeley and Hunter have nearly accomplished that end in the 13th edition of Rose and Carless' manual. The work is comprehensive and concise, and should be in the library of every physician and medical student. J. G. M.

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**DISEASES OF THE STOMACH.** A Textbook for Practitioners and Students. By Max Einhorn, M.D., Emeritus Professor of Medicine at the New York Postgraduate Medical School and Hospital; Consulting Physician to the Lenox Hill Hospital, New York. Seventh revised edition. New York: William Wood and Company. 1929. Price \$6.00.

To those who have been steadily in practice for thirty years or more this book is a reminder of the textbooks of the nineties. Its material is arranged on the pathologico-anatomical basis. It begins with the simple inflammations and passes over finally to the nervous affections. Much space is taken up with the description of the instruments and maneuvers used by Dr. Einhorn in his long practice.

This new edition will remind many of us that the whole medical world has not yet accepted the doctrine that four-fifths of the stomach diseases are caused by conditions outside of the stomach and that a stomach specialist today must be an endocrinologist, a neurologist, a gynecologist, in short, an internist. For that remnant then of the medical



profession who believes that diseases of the stomach can be separated out and made a special field, this new edition will be a great help besides giving moral support. For the younger men it will be of value as a reference work and keep them from going too far astray in the by-paths of modern theories on the interplay of the autonomic and cerebrospinal nervous system.  
G. H. H.

A PRACTICAL MEDICAL DICTIONARY of Words Used in Medicine With Their Derivation and Pronunciation, etc. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine," and of the "Reference Handbook of the Medical Sciences." Formerly editor of the "Medical Record." Eleventh revised edition. Illustrated. New York: William Wood and Company. 1930. Price \$7.50.

When Dr. Stedman published the first edition of "A Practical Medical Dictionary" in 1911 it was accepted at once as a popular dictionary for the busy physician and every two years the new edition has increased its value.

The eleventh edition is thoroughly revised and the nomenclature to date, supplying the profession with an invaluable volume.  
R. M. H.

NERVOUS INDIGESTION. By Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation). New York: Paul B. Hoeber, Inc. 1930. Price \$3.75.

This latest book by Alvarez is one of the most valuable contributions to our understanding and management of the nervous patient—the type we often dismiss as a "neuro" largely because we do not understand him. Alvarez' masterly style of combining physiology and theory, together with his natural wit and knowledge of medical history, make this difficult subject quite simple. The last chapter contains brief abstracts from the writings of Osler, Darwin, Weir Mitchell, Hippocrates, Robert Louis Stevenson and others, and an extensive bibliography which in itself is invaluable. The reviewer unqualifiedly recommends this book. It should stimulate every student of medicine to make a close study of functional gastro-intestinal symptoms. Not only should this book find a place in the library of every physician but it is an excellent work to put into the hands of intelligent laymen.  
A. C. C.

#### CHANGE FROM LEFT TO RIGHT HAND MAY AFFECT SPEECH

When mistaken parents try to force a left-handed child to become right-handed, the child is likely to develop a speech defect. Dr. B. C. H. Harvey explains in an article on the nervous system in the September issue of *Hygeia* why this is so.

The spinal cord, which with the brain makes up the central nervous system, contains many nerve fibers, each of which has its own place in the cord and its own function. Disease of one part of the nervous system can be detected and its position diagnosed by the disturbance of these functions, Dr. Harvey says.

Many fibers cross over from the right to the left side. Thus the right side of the brain controls the muscles of the left side of the body and the left side of the brain the muscles of the right side. This is how right-handedness is associated with left-brainedness and injury to the left side of the brain (as in cerebral hemorrhage) produces paralysis on the right side of the body.

Right-handedness and left-brainedness are asso-

ciated through this crossing of fibers and there goes with it one-sidedness of some of the higher functions of the brain, like speech control, which is in the right side of the brain in right-handed persons and on the left side in left-handed. That is how it comes about that an attempt to force a naturally left-handed child to be right-handed sometimes results in stammering or some other defect.

#### SHOWER BATH SHOULD COOL OFF GRADUALLY

A shower bath following exercise has two important effects: it cleanses the body surface of the secretions of the skin glands and of the extraneous dirt that clings to the moist skin and it helps bring back to normal the physiologic processes that have been speeded up during the period of exercise. Dr. Margaret Bell, in the September *Hygeia*, tells how to get the greatest benefit from the shower bath.

The first few minutes of the postexercise shower should be taken with the water at the temperature of the body. Plenty of soap should be used to dissolve the secretions of the sebaceous glands.

The second part of the shower should be taken with cooler and cooler water until the spray is cold. The surface blood vessels, which have been dilated during exercise by the heat-regulating mechanism of the body, are now contracted. The cooler blood circulates throughout the body and the temperature drops. The heart rate decreases, blood pressure becomes lower, secretions decrease and muscle repair sets in. A wave of relaxation passes over the body, followed by a sensation of well being.

The drying process should be thorough. It is important that the hair be dried well, and the dressing process should be leisurely. With these precautions, cold showers apparently increase immunity to respiratory infection.

#### TEACH MEDICINE SURGERY THROUGH MOTION PICTURES

The movies have entered medicine.

Many schools of medicine now have a department of motion picture photography for making teaching films and commercial firms have established departments for the sole production of medical film, according to Carl D. Clarke, writing in *Hygeia* for September.

Motion pictures bring the student in contact with the operating table or with careful diagnosis of the patient's condition as made by skilled physicians in a way that a view of an operation from an amphitheater seat could never do.

Motion picture film is lighter and more easily handled than lantern slides, and the component parts of a lecture are not so easily broken or disarranged. Yet it has all the advantages of slides in that the film can be stopped on a particular picture for extended comment if necessary. Individual pictures can be enlarged for reproduction or for use as slides.

Not only does the motion picture show outward characteristics of disease and methods of operation, but with the aid of the X-ray it can take pictures of joints in motion and of the peristalsis of the intestines. With the microscope it can photograph living organisms and the activity of living cells.

Within a few years the medical student will undoubtedly see and listen to many sound medical motion pictures, Dr. Clarke predicts. In fact, the new building of the Chicago Lying-In Hospital is being equipped for sound movies in anticipation of this development.



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### FRACTURES INVOLVING THE ELBOW\*

M. L. KLINEFELTER, M.D.

ST. LOUIS

The construction of the elbow is such that a great variety of fractures occurs in the immediate region of the joint all of which affect its function when a good result is not obtained.

The most frequent of these fractures in our experience and I believe the most frequent with which we deal in the entire body, is the intercondyloid fracture of the humerus. Some of these may occasionally be supracondylar, some slightly epiphyseal, and some even epiphyseal. Such fractures usually occur in children, resulting from a fall on the outstretched arm. Some of them are slight, the periosteum being intact and the fragment not displaced, but the lower fragment rotated on the axis of the humerus and requiring some correction. This correction can usually be obtained by forcibly fully flexing the elbow, the manipulation practically always requiring an anesthetic. After reduction in slight fractures a sling holding arm in an acute flexion or a hyperflexion bandage will suffice, but a light cast renders the patient more comfortable and certainly gives equally good or better results. Union results in three to four weeks. Some active motion can be started in two to three weeks.

Most of these intercondylar fractures with which we have to deal are more severe, the lower fragment being displaced backward and inward or backward and outward, the periosteum being torn or loosened anteriorly and stripped from the proximal fragment posteriorly. In such fractures the disability is immediate, the deformity noticeable, the circulation interfered with early, and the swelling has a tendency to become extreme if a fairly early reduction has not been obtained. We have seen many cases where the radial nerve is stretched across the lower end of the upper

fragment and severely damaged, and occasionally severed. In the younger children where ossification is absent or only slightly present the roentgen ray findings may be very misleading.

In the emergency treatment in these cases the most important thing is not to bind the arm tightly on a straight splint, an ordinary triangular sling being more comfortable and much less dangerous. A loosely applied right angular splint with pad in front above fracture and posteriorly below fracture plus the sling is preferable. Reduction should be made fairly early and anesthesia should be complete if only for a minute. When the patient is anesthetized the operator should grasp the upper fragment in one hand, the lower fragment and upper end of forearm in other hand, at first holding them as one piece. The arm should then be hyperextended at the site of fracture and as traction is exerted the distal fragments should if possible be entangled with proximal fragment. If this cannot be done the distal fragment should be thoroughly reduced, or slightly over-reduced, and arm flexed to or past a right angle. This flexion is not obtained by taking hold of forearm or hand, but by pressing forward on the lower fragment and olecranon to obviate the redisplacement of fragment, which may occur if one flexes the arm in the usual manner. An assistant in some cases may be useful to hold and guide the hand in this flexion movement.

We usually dress these arms from a right angle up to fairly acute flexion, depending on the severity of injury to soft tissues, the amount of swelling that has occurred before the reduction, and the amount of displacement present before the reduction. The less severe cases will tolerate fairly acute flexion, but those with considerable displacement and where the arm is much swollen are likely to become much more swollen if flexion is acute, and the skin becomes macerated in places; also, where the displacement has been great, we are much less likely to have redisplacement if the arm is not

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

flexed more than 20 to 30 degrees past a right angle for the first ten to twelve days. By this time the fragments have united sufficiently so that the patient can be redressed without an anesthetic and flexion carried to an acute angle with practically no danger of maladjusting the fragment ends. This maneuver is usually not accompanied by pain. We use plaster of paris for dressing; it immobilizes better and renders the patient more comfortable. In cases of early reduction accompanied by little swelling the reduction usually obviates further swelling. In cases of severe swelling or where great swelling is anticipated, a posterior plaster splint held in place by a few turns of plaster may be applied. This can be readily opened to compensate for or accommodate any serious swelling that may occur. As a rule, a cast is worn about four weeks in all.

The above type of fracture very rarely requires open reduction. When compound, however, these, like other compound fractures, should be inspected, drained, reduced, fixed when necessary and immobilized as early as possible, the cast being fenestrated to permit of dressing the wound. When the second cast has been removed, in about three and one-half to four weeks after injury, the after-treatment consists of instructing the patient to place the hand of his injured arm on shoulder of injured side frequently. If instructions are not followed the doctor and others show the patient, and very little such trouble is experienced in well reduced cases. No force is used in trying to straighten the arm, patient being allowed to straighten arm himself as far as possible without causing any pain or strain. Some require several months to straighten the arm thoroughly but this is only a temporary handicap. If force is used in manipulating these arms in the early stages following removal of dressing, fractures may be sprung causing an unnecessary amount of callous formation and unnecessarily limiting motion for a long period of time and sometimes permanently.

*Condyles.*—The fracture of either condyle alone results from about the same force as the preceding fractures, but is accompanied by a lateral thrust. The diagnosis may be difficult in slight fractures, especially in young children, because the disability may be rather slight at first, but it increases as the fragment becomes more loosened from motion or attempted use of the arm. Roentgen ray may reveal very little if ossification has not begun or if there is little bony tissue in the fragment. In these slight cases, immobilization in flexion usually gives good results. In the more severe types the clinical diagnosis is comparatively easy as

to the presence of fracture, but the relation of the fragment to its normal position may be very difficult even with the aid of the roentgen ray. The nature of the rotation is the difficult point where it has been detached from most of its soft tissue attachments.

The treatment of such fractures of one condyle probably taxes the judgment of the surgeon as much as any fracture in the entire body. The small size and the shape of the fragment frequently render proper rotation of the fragment through the soft structures impossible, even though the arm be small. Again, the fact that the arm is treated in a flexed position and because so much of the loose fragment is cartilaginous roentgen ray examination after reduction is very unreliable. We must realize also that at the time when the fracture should be fairly well united the act of straightening arm somewhat and feeling the fragment to determine the presence of union, may undo what union has taken place. These facts together with the knowledge that such fractures probably result in not only delayed union but in nonunion more frequently (with few exceptions) than any other fracture, lead us to think an early open reduction is indicated more frequently in these than in any other fracture with which we have to deal. When one feels rather certain that no great rotation has occurred he is justified in conservative treatment. However, if at the end of five or six weeks union has not occurred the case should be operated on and the surgeon should not deceive himself by thinking the fragment is of no importance because of its small size. These fragments though small are important parts of the skeletal system and later become greatly increased in size. In the open reduction I have in some cases had to study the situation carefully to determine how to disentangle the fragment before replacing it. Broken pieces when replaced may be held in some instances by means of catgut, others require bone or ivory pegs.

*T Fractures.*—These fractures of the lower end of the humerus frequently show a great deal of displacement, but they also, as a rule, unite well and for this reason can usually be treated conservatively though they may have to be manipulated several times to prevent spreading. Some of them require open reduction and pegging.

Fractures of the head of the radius are very frequent injuries. If slight they may be overlooked especially by roentgen ray examination, but the history of having fallen on the outstretched arm together with the physical evidence is usually sufficient to make a diagnosis. Localized tenderness over the head of radius,



pain increased at this point on rotation and blood in the joint make up the cardinal symptoms. Rest in fairly acute flexion in plaster cast for about two weeks gives better results than no treatment in the slightly fractured and impacted cases. Motion when begun should be active rather than passive, and slight and gradually increased as to extension; but the ability to flex and supinate should by all means be watched and these motions persistently kept up. In the more severe fractures with slight displacement the arm should be immobilized three to four weeks, the after-treatment being followed up as above.

Where fragments are definitely displaced and detached from all blood supply, one most always gets a better result and function much earlier by removing such fragments and repairing the capsule and orbicular ligaments. We have in most such cases been able to preserve a part of the head for bearing surface and obtained good results where operation was done early. When the entire head is comminuted into small fragments and none of the small fragments are greatly displaced it is better to treat the case conservatively from four to six weeks and see what results are obtained. If some of them unite and others do not, the ones that do not can be removed at this time. If one gets a very rough result the head of radius can be rendered smooth by surgical procedure. But if the entire head is comminuted and fragments definitely displaced it is better to remove all the fragments early and render the end of bone smooth, but not extravagantly, and repair capsule and ligament. Where head is impacted on the neck or neck fractured and impacted with proximal fragment, definitely out of line with the axis of the radius, such angulation will certainly interfere with if not prevent rotation later and should like others be corrected before a mass of adhesions forms. We feel that in dealing with fractures of the head of the radius one should keep a fairly accurate classification in mind. If this operation is to be done, as a rule, it should be done early before the head and small fragments have become entangled in adhesions and these adhesions strengthened by attempted forcible flexion and rotation. Most of the cases which we have operated on early have gotten very good functional results, but in the cases that we have operated on later, after rotation was definitely limited, we have accomplished very little. Such cases accompanied by luxation or subluxation of the ulna should be watched very carefully for a recurrence of the dislocation, even several weeks after the reduction. The violence in injuries to the head of the radius or

lateral condyle frequently ruptures or avulses the medial ligament and may in some cases result in delayed ulnar palsy.

*Olecranon.*—The diagnosis is evident. Comminuted fracture of the olecranon due to direct violence, and transverse fracture of the olecranon with only slight or no displacement, where periosteous structures are intact, should be immobilized in as much flexion as can be obtained (up to 90 degrees) without separating the fragments. Those due to indirect violence with definite separation usually unite with fibrous union and fair to good function is obtained if treated conservatively, that is, immobilized in the best possible position from moderate to complete extension in plaster or sling. This can be aided by means of pads and adhesive strappings and should be checked up frequently with the roentgen ray. Some of these fractures do not unite with such treatment and nonunion, though infrequent, causes much disability when it occurs. Open reduction is rather simple if one feels an accurate reduction is indicated, age and occupation being considered in deciding this. Fragments can be held together by suturing soft tissues or by using hard catgut or autogenous bone fragments for the bone. When compounded they should be drained and fragments held in position by the best possible means, usually catgut, bone or ivory peg.

401 Wall Building.

## A MODERN CONCEPTION AND PLAN OF ANESTHESIA\*

WILLARD BARTLETT, M.D.

AND

WILLARD BARTLETT, JR., M.D.

ST. LOUIS

It is not possible to overestimate the value of complete mental and physical rest for from ten to twenty hours preceding and following an operation, as a means of allowing the patient to build up automatically his resistance to surgical trauma. It is almost equally important that there be no interruption of intake meanwhile; such patients should usually drink all they desire as soon as replaced in bed and be spared the additional annoyance of hypodermoclysis, etc.

No one now alive remembers the period when it was current practice to tie or hold a patient down during a harrowing surgical procedure. Having this picture in mind, the surgeon of an earlier day must have been more

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



than satisfied when the introduction of ether and chloroform forever freed the sufferer from the torture that had been his while on the table. Are we now, nearly one hundred years later, keeping step with progress in other fields unless we make every effort to overcome the anxiety, insomnia, restlessness, nausea, sweating, pain and thirst which customarily precede or follow surgical operations? If we eliminate these, we can accomplish four desirable ends by diminishing the likelihood of (a) respiratory complications (cough, gag and swallow reflexes with their relationship to lung collapse are not abolished by the régime we now employ), (b) vomiting, (c) distension, (d) bladder paralysis. All these increase intra-abdominal tension and render likely the faulty repair of abdominal wounds. The elimination of ether and the extreme restriction of opium derivatives are absolutely essential if these last three mentioned ideals are to be accomplished.

Up to May 1 of this year we had studied the effects of veronal and luminal upon 1,218 patients, having in mind widening the scope of surgical anesthesia. This paper gives the result of our experience with 190 individuals who, in the accomplishment of our anesthesia plan, took relatively large amounts of luminal, the drug being administered in a single dose to 134 of them, and in broken doses to the remaining 56. We have mentioned contraindications to the use of luminal and it has not been employed in all our anesthetics during the period under consideration. This study embraces experiences which are consecutive only in so far as the anesthesia is concerned, no case having been omitted if luminal had been taken. The various effects produced by this drug in large doses were reported by us at the Atlanta meeting of the Southern Surgical Association in December, 1929.

*The Plan.*—It is to be clearly understood that we are merely championing a plan of anesthesia; the choice of drugs is a secondary matter. Other investigators may carry out our idea as well or better by employing other agents. Our plan of procedure is chosen rather for the patient's benefit than for the operator's comfort alone. It will not appeal to the man who is willing to "completely relax" his patient by a dangerous overdose of ether instead of by nerve blocking the abdominal wall during a light narcosis such as here outlined.

Our patients are carried for about 36 hours in what may be called a dream-state, being actually unconscious during the operation only. They are more or less responsive at all

times, seem wholly rational, answer questions, but manifest no interest in their surroundings then and later retain only the haziest, if any, recollection of this entire period and its happenings. Our prolonged semi-anesthesia renders it unnecessary in goiter cases to operate outside the operating room, or, indeed, to start gas in a patient's bed no matter how toxic she may be; she is indifferent to the change from bed to operating table, hence no psychic damage is done.

Every satisfactory anesthesia is a compromise between advantages gained and risks taken. One does not claim that a drug so potent as luminal, for example, is utterly harmless; it cannot possibly be harmless. Still, it has seemed in our hands to have greatly reduced the need for much of the more dangerous anesthetic substances and at the same time to have possessed advantages not inherent in them. It is easy to exceed the proper dose of any sedative drug, thus risking the pathologic rather than the wanted physiologic effect. With this axiom in mind we endeavor to induce a mild anesthetic state of from 24 to 36 hours' duration by superimposing upon one another the influences of luminal, nitrous oxid (sometimes ethylene), one dose of morphine if great postoperative pain be present, and several doses of pyramidon. In some instances, of course, spinal, regional, or other form of local anesthesia is substituted for the gases, but the patient is never allowed to remain completely awake. We believe it more humane to carry out major surgical operations under general anesthesia if feasible, but it must be remembered that an occasional goiter patient will seem on the verge of drowning in mucus soon after gas is started. Just here the luminal preparation has its particular value. Gas is dispensed with, procaine is injected, the operation proceeds with the patient rather oblivious to her surroundings and later unable to state just what anesthesia method was employed. No doubt many other similar emergencies arise touching every part of the body. Atropine tends to rouse the sleepy luminal patient (Gruber) if employed before an inhalation anesthesia, hence its use is not to be recommended if it can be avoided. However, we are frequently forced to employ it when an excessive amount of mucus is secreted early in a thyroidectomy. Should there be actual need of producing artificial sleep at any period of the hospital stay outside the vital 36 anesthesia hours, so-called, we resort to chloral hydrate and paraldehyde by mouth or rectum. Every effort is made to avoid morphine at all times though it is, of course, the final

recourse for pain which cannot be relieved in any other way. One should, however, search for the cause of the pain and try to relieve that rather than treat the chief symptom alone.

*Dosage.*—There is a possibility of the cumulative toxic action of any drug which requires 72 hours for its elimination. Hence we never, except as later stated (aside from the anesthesia period), give a barbituric acid compound during the patient's hospital stay unless as a tolerance test after which it is not used for the 72 hours elimination period preceding its administration as a partial anesthetic. It must be kept in mind in determining the dose of this class of drugs that the use of any sedative establishes a tolerance for any other. (Gasser.)

We approached our present dosage plan cautiously beginning with the smallest thinkable amounts in the interest of safety. We had in mind, however, a dosage background furnished us by Dr. Gruber who is in possession of practically all the literature references on luminal since its introduction in 1912. It has been recommended in the following amounts: (1) fifteen grains per day in broken doses; (2) maximum dose advised by one German author is 13 grains; (3) 10 grains for 20 successive nights; (4) in 8 grain doses; (5) 5 grains three times daily; (6) 5 grains every two hours until four doses are taken.

Our standard dose for strong patients in middle life is 15 grains, powdered in hot milk, taken all at once by mouth three hours before the operation, provided the blood pressure is not low. A very small or greatly depleted woman takes less, and a very large, active man needs more, as does one having a toxic goiter. When the preanesthetic observation of a patient is not sufficiently lengthy to permit of a tolerance test with small amounts of luminal, we recommend the substitution of broken doses in place of the single large dose we usually give three hours before operation. Thus if 3 grains of luminal are scheduled to be administered at 9 and 12 p. m., 3, 6, and 9 a. m., to a patient for whom a 10 a. m. operation is planned, surely an idiosyncrasy might be expected to manifest itself after a dose or two thus indicating the discontinuance of the drug before a dangerously large amount had been given. The administration of the broken doses in our hospital service is supervised by an experienced night superintendent who allows no more to be given after suspicious symptoms arise. Although exceedingly rare, one should be on the lookout for unconsciousness, mental aberrations, loss of speech, or vomit-

ing. When more than 15 grains of luminal are needed, grains 21 are given in seven doses of 3 grains each at three hour intervals, 2, 5, 8, 11 p. m., 2, 5, 8 a. m. This usually brings a partly wakeful, rational patient to the operating room at 9. She may say she feels "dopey" but converses intelligently, recognizes her surroundings but takes no interest in them and frequently has no recollection of them the next day. The foregoing routine will serve as a sample of our plan when unusually large amounts are given. We never give more than 15 grains at a single dose. The maximum dose in our entire experience was grains  $31\frac{1}{2}$  given Mr. F. in eighteen hours,  $4\frac{1}{2}$  grains every three hours for seven doses (June 18, 1929). He dropped asleep on the table, woke spontaneously, entirely rational, refused gas, was a model cooperative patient, and was normally sensitive to pain. He had had four goiter operations and was accustomed to every sedative. He made a normal recovery; he had been one of our most toxic goiter patients.

The field of usefulness for luminal appears to be considerably widened by our recent experience in its use by rectum. Where nothing can be given by mouth we secure very nearly the wanted effect by injecting the usual amount, pulverized in water, into the rectum. We always use chloral or paraldehyde the night before our single large morning dose. (They are, of course, unnecessary when broken doses are given.)

*Untoward Effects.*—A patient's true psychic inclination will "show through" the effect of any but the most highly toxic dose of every sedative, hence a few individuals are almost unmanageable although as deeply narcotized as seems safe. Dr. Schwab feels as I do, that the obvious answer to this situation is to be found in the attitude and efficiency of physicians, nurses and all others who come in contact with such a patient. Unless he feels at all times that he is in the best possible surroundings, he cannot be perfectly cooperative, even when partly dazed by drugs. Our duty, therefore, seems to be perfectly obvious.

No two people react alike to any narcotizing drug given in less than a paralyzing dose, hence it is to be expected that an operator will take into consideration the individual patient's race, temperament, habits and condition when judging the effects of (luminal) drugs. All authorities agree that there is an individual susceptibility to luminal. We are not sure that we have detected it in a single individual; we have surely very rarely seen any of its seriously toxic manifestations. It is difficult to ex-



plain why one patient is more profoundly affected by luminal than is another of the same general type. The drug is excreted by the kidneys, hence a study of them may elucidate this problem. However, our own studies tend to show that it has nothing to do with non-protein nitrogen retention.

A deep surgical inhalation anesthesia sometimes seems more difficult to secure after luminal preparation for the reason that a patient so treated cannot inhale as deeply as would otherwise be possible. This may possibly be a blessing in disguise as far as danger from the inhalant is concerned.

It is a well known fact that a psychosis can develop in the chronic user of luminal; still, Dr. Schwab does not feel that a large amount of the drug given as proposed entails any such hazard. However, a large number of these patients are being followed up with this particular inquiry in mind. After using our anesthesia plan seventy-five times, Dr. Singleton, professor of surgery of the University of Texas, writes: "We can say we are more than pleased with luminal and expect to continue its use. From the report you will see that three old men died following operation, but we do not hold the luminal responsible for their deaths as they were very bad risks. We do not feel like saying definitely, but we are inclined to believe that in older people large doses are not advisable. They seem to be more susceptible to the effect of luminal and its action is more profound and lasts longer than in younger individuals." My hearers and I are indebted to Singleton for that observation; possibly the drug should not be employed at all in patients so old that their speech, movement and all vital processes have slowed down greatly. A patient who vomits a barbituric acid compound may be unduly susceptible to its effects and be thereby protected against poisoning. If the converse be true, a series of small doses at intervals of two or three hours may be expected to produce a satisfactory cumulative effect without dangerous symptoms.

There seems to be a marked difference between the products of different manufacturers. The drug from one has produced much dizziness, diplopia and haziness of vision, symptoms which we had rarely noticed until a change in the source of supply was made. In view of that finding I advise experimentation on the part of future users. The diplopia in our patients has been the subject of study by Drs. Luedde and Green who pronounce it to be of central origin and toxic in character; no change in the balance of motor oculi muscles has been found to account for it. While no diplopia has lasted longer than three or four days, still the patients so affected are to be kept under obser-

vation, and Dr. Luedde will have a large number of eyes examined before and after operation to determine a possible predisposition in certain individuals. The occasional patient who has vomited during the first twelve postoperative hours has rather frequently attributed it to the specific flavor of the fluid imbibed, hence we now give water only during this early period, six to eight ounces being offered the patient every hour.

"Although a host of changes are seen in toxic cases, yet the drug is relatively nontoxic when given properly. The range between the therapeutic and the toxic dose is large. Patients have taken as much as 46.2 grains of phenobarbital (luminal) in a single dose without causing death, and the four deaths attributed to it were probably not wholly due to the drug but due to other causes."<sup>1</sup>

*Various Fields.*—The writers present a plan of anesthesia which has been maturing during ten years' study on selected patients; its conspicuous value in general surgery has quite naturally suggested its employment in several other fields where a more or less complete anesthesia is essential or at least desirable. Hence the plan is amplified at this time in the hope that it will meet the needs of most of the men who comprise a general medical assemblage.

A perusal of German and French literature discloses indications that barbituric acid compounds neither slow up uterine contractions nor poison the fetus, hence one is inclined to believe that this anesthesia plan might be of use especially to the physician who has neither a hospital nor an anesthetist. From the obstetricians we gather that a multipara might average about six hours and a primipara about twelve hours in labor; hence we are advising that 3 grains of luminal be given every hour to the former from the onset of pain until five doses have been taken. The primipara might better take 1½ grains every hour until ten doses have been used. For the actual delivery, a very little gas or ether may be needed as is the case in major surgery. Dr. Dorsett, who has used it in four deliveries, will give his own impression in the discussion to follow the reading of this paper.

Luminal appears to possess multiple advantages in the treatment of fractures. A large dose so completely relaxes the average patient that very little additional anesthesia or, indeed, none at all would seem indicated in some instances for the reduction, especially if one-half per cent novocaine be injected into the area involved. A cast is not likely to be

1. Gruber, C. M.; Shackelford, H. H., and Ecklund, A. M.: Effect of Phenobarbital (Luminal) on Blood Pressure in Arterial Hypertension; Preliminary Report, 36:366 (September) 1925.



broken during the hardening process nor other kinds of splints become disarranged during the 18 to 24 hours of the partial anesthesia. Furthermore, the patient is spared the sensation accompanying the drying of a cast, and the tedium incident to having an extremity in a fixed position during the trying early period subsequent to a serious injury. One drawback must be admitted here, namely: fresh fractures are best reduced as soon as seen while luminal requires at least 1 to 2 hours to exert its effect. This objection will not obtain for a delayed or secondary reduction, while the postoperative value of the method will compensate for its use in any case, we believe. Unfortunately, the drug will here be used without any knowledge of the patient's tolerance and all be given at one time. We have never found 15 grains dangerous in an average adult, provided that the blood pressure was within normal limits. The reduction of an intracapsular fracture in an aged patient presents peculiar difficulties since relaxation is indispensable, but respiratory hazard must not be increased. It is quite possible that luminal might not fulfill these two conditions.

Our régime is conspicuous for its value in surgery on children too young to reason or cooperate. (For this suggestion I thank Dr. Singleton.) Under its influence they experience no panic when confronted with strange faces and stranger sights in the operating room nor do they noisily resist an inhalation anesthesia—indeed, local infiltration can be employed with them to a degree which is hardly possible in the absence of some such preliminary treatment. The luminal dosage may be graduated to the weight of the individual, taking 15 grains as the normal dose for a 150 pound adult.

Dr. Tonelli tells me that a tonsillectomy patient under the influence of luminal is much more manageable during the operation and preceding nerve block than is one who has not taken the drug. Further, it very greatly lessens the misery of the first postoperative day although he uses only one-half of our dose. Our wide experience in general surgery has demonstrated that it may be used in rather large doses without abolishing cough, gag, or swallowing reflexes, a matter of superlative importance since the retention of these reflexes constitutes the patient's best defense against lung abscess resulting from inspiration of infective material during or after a mouth operation.

Dr. Caulk feels that a field for this plan of semi-anesthesia exists in operative cystoscopic work, there being many such patients whom

one desires to make oblivious to their condition and surroundings for twenty-four hours following the procedure.

A 15 grain dose of luminal goes far toward enabling one to make satisfactorily the type of bimanual pelvic examination for which a general anesthesia has been considered essential. In some instances the woman retains no recollection of what has transpired. The saving of expense and the avoidance of risk are quite obvious. This plan cannot, of course, be used in the treatment of ambulatory cases.

Among the many highly disagreeable surgical procedures is the induction of a spinal anesthesia. We always prepare such a patient with luminal, and then, provided the blood pressure has not dropped too low, introduce the needle while she lies on the side or on the face, depending on the operation to be done.

Not all patients react alike to the after-effect of luminal, hence the postoperative treatment deserves especial consideration. The great majority of patients need no sedative after leaving the table; a very small second group who have been under-dosed before operation are given luminal (grains  $1\frac{1}{2}$ ) with pyramidon (grains 5) every 4 hours as long as they are restless or complaining, while a still smaller third group become mildly maniacal and require morphine (grains  $\frac{1}{4}$ ) after which they act as do the patients in the large group first mentioned.

The actual results obtained in the treatment of 134 patients who received a single dose of luminal are tabulated as follows:

#### SINGLE DOSE (134 Cases)

6 grains,	1 case
7 grains,	3 cases
9 grains,	3 cases
12 grains,	23 cases
15 grains,	46 cases
18 grains,	22 cases
19 to 22 grains,	18 cases
24 grains,	16 cases
30 grains,	2 cases
Average dose 18.18 grains	

#### EFFECT UPON REACHING OPERATING ROOM

Slight,	13 patients
Medium,	87 patients
Profound,	34 patients

#### ANESTHETIC AGENTS EMPLOYED

Nitrous oxide,	81 cases
Ethylene,	22 cases
Nitrous oxide-ethylene,	11 cases
Spinal,	13 cases
Spinal-nitrous oxide,	2 cases
Local,	1 case
Local-nitrous oxide,	2 cases
None,	2 cases

# LENGTH OF TIME EFFECT OF ANESTHESIA LASTED

6 hours, 6 cases
12 hours, 21 cases
18 hours, 13 cases
24 hours, 23 cases
30 hours, 23 cases
36 hours, 11 cases
48 hours, 17 cases
60-80 hours, 13 cases
Unknown, 5 cases
Expired, 2 cases

The effect of the anesthesia lasted 26 hours in the average individual.

Morphine was given to 59 patients, or 44 per cent, in the first 12 hours; only 32 of the patients, or 23 per cent, vomited during the 12 hours following operation.

Metropolitan Bldg.

## DISCUSSION

DR. G. W. HAWKINS, Salisbury: At what stage did you begin the luminal?

DR. BARTLETT: As soon as the patient went into labor.

DR. J. T. HORNBACK, Nevada: How did you give it?

DR. BARTLETT: By mouth.

DR. HORNBACK: Did it have any effect on the duration of uterine contraction?

DR. BARTLETT: It did not seem to affect that.

DR. A. H. MARSHALL, Charleston: Was there any hemorrhage afterward?

DR. BARTLETT: No, none in these cases.

DR. C. A. WELLS, Quincy, Illinois: I would like to ask Dr. Bartlett if he has any data in regard to blood pressure with this anesthetic, and if so, how soon after the administration of the anesthetic the readings were made?

DR. E. LEE DORSETT, St. Louis: I have been very much interested in Dr. Bartlett's use of luminal, and after considerable persuasion I have used it in a small number of cases. While in the past anesthesia was used in moderation, patients now demand almost complete anesthesia through the entire labor. I have made a study of twilight sleep and am in favor of it in a great many cases. Up to a short time ago I had little success with cases of hyperemesis until I began to use sodium luminal. I was afraid of luminal and was appalled by the dose Dr. Bartlett was giving, but he persuaded me to try it and I have had four cases so far. I had fairly good success, two being primiparae and two multiparae. I gave 15 grains of luminal to start with and carried them through labor safely and also the children. That seems a very large dose, but I accepted Dr. Bartlett's statement that it would be a safe dose. The only thing I could criticize was that the women were in a profound sleep for a considerable length of time following delivery. There was no effect on the baby.

DR. W. C. GAYLER, St. Louis: I have repeatedly given small doses of luminal after delivery. After a woman has been through labor, no matter how carefully conducted, she is usually nervous and unable to sleep. I did give two and a half grains of luminal after the whole thing was over and am under the impression that the amount of bleeding following delivery was increased after the use of luminal. I may be mistaken.

DR. LEE DORSETT: I meant that I give my injec-

tion of luminal through the use of sodium luminal in hyperemesis. I gave much larger doses than I was ever familiar with in those cases, and then when labor began I did not have the fear I did previously.

DR. BARTLETT, in closing: I am glad Dr. Munsch brought up the question of the respiratory conditions. These patients are not given so much that they are stuporous or unconscious. They are not normal people. They are terrifically stimulated and fifteen grains do not interfere with respiration. For tonsillectomies do not use these large doses. We have been using half-doses in order not to interfere with the respiratory reflexes. That is fully treated in the paper.

As to the question about the blood pressure, I wrote a preliminary paper on that subject and read it at the Southern Surgical Association in December, 1929. It contains a long list of patients with blood pressure readings before and after the dose, and the most diverse findings are shown. In most instances the blood pressure was reduced. In quite a number it was raised and in a still less number it was mixed,—the systolic would go up and the diastolic down, or the reverse.

My hope is, this being an audience of men representing all the fields, that the men in each field may find something in it that is worth while.

## SYMPOSIUM ON GYNECOLOGY AND OBSTETRICS

### THE GYNECOLOGY OF THE PUERPERIUM\*

MINFORD ARMOUR HANNA, M.D.

KANSAS CITY, MO.

Postpartum observation is beginning to receive the deserved recognition among physicians which has for many years been given to prenatal care, both of which are of equal significance in preventing the tragedies and semi-invalidism of the parturient woman. Sixty per cent of the surgery done on women in our hospitals is classified as gynecology. Statistics show that childbirth constitutes a greater risk for women between the ages of fifteen and forty-five than any single disease or class of diseases, with the exception of tuberculosis, while the number of women whose health it destroys or impairs is greater than we can estimate from our observations.

Apparently women in the United States run a greater risk of death from childbirth than do the women of any other civilized country in the world. With all our wealth, our hospitals and our vaunted educational facilities, we have led in high maternal mortality since 1924. This condition can be improved if medical schools will give a more comprehensive course of instruction

\* Read in the Symposium on Gynecology and Obstetrics at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



in clinical obstetrics, and the prospective mother be taught to avail herself of hospital facilities and seek the most skillful medical service.

At this time more young physicians are being attracted to the specialty of obstetrics and gynecology than to any other field of surgery. There is also a more restricted demand for obstetricians, except as teachers, than at any other period in the development of medicine and surgery because of an increasing inclination on the part of the layman to keep the size of his family within his financial resources. He has been taught to expect a charge from the specialist commensurate with the exalted idea he has formed of a "specialist." The specialist in obstetrics must remember that it is largely the young people of today who are raising families the majority of whom are not enjoying large fortunes and it is the responsibility of the physicians to give them discriminating service at moderate fees. He must also remember that he comes the nearest of all the specialists today to being the "Old Family Doctor" of yesterday.

As a result of the increased cost of living, the subtle propaganda of birth control and the new freedom of women, the average American family has contracted more than three hundred per cent during the last generation. The philosophy of the modern woman does not include in her program the rearing of a large family. This statement is not an inference that her maternal instinct is decreasing but an assertion that her acceptance of motherhood is being materially influenced by her convenience and the increasing cost of rearing a family.

The intelligent educated woman now determines whether she will become a mother or not and, if so, how large her family shall be. There is no teaching or provision in our code of ethics to cover this modern development. I am fully convinced that during the next few generations the position of woman will have developed to the point where she will demand that the state and society recognize her right to determine whether she shall accept maternity or reject it.

A feature article recently appeared in a popular magazine entitled "War or Birth Control?" The author called attention to the fact that the increase in population is so rapid in some parts of the European and Oriental countries that the inhabitants will

soon find it impossible to subsist on their restricted land areas. The matter has resolved itself into an economic problem, "War or Birth Control?" Either solution would be frowned upon by the pacifist and the moralist. However, stranger teachings than birth restriction have been accepted in the history of the world.

In the short and simple annals of the poor it is remarked that when the horn of plenty is empty nature fills it with babies. It is under the rough and elementary conditions of life that the birth rate is highest. Indeed, a part of our better living conditions is due to the fact that when people begin to conserve and to get out of life a better value for their efforts, their thrift extends to restricting the number of children. It is a statement of fact that our intellectual classes are breeding themselves out, and even our poorly paid ministers of the Gospel, who a generation ago were fathers of large families, today have at least an unconscious tendency toward birth restriction.

It is observed by physicians that there is an increasing tendency on the part of the modern woman to evade the responsibility of motherhood. The average matron does not accept more than two children without protest. This may be partially accounted for by her dread of the physical discomfiture associated with the ordeal. A further contribution to her attitude in this matter is found in the fact that she oftentimes is compelled to interrupt her social activities temporarily and make many sacrifices during the first years of a child's life. This intimation would doubtless meet with a vigorous denial from many mothers but the notations are statistical.

A discussion of this subject is not tolerated in polite society and is only whispered in scientific circles. Birth control, in a subtle manner, has come to be almost a universal practice, but the individual who assumes to defend it at this time must be possessed of considerable arrogance and temerity. The principal objection to the teachings of contraceptive propaganda so that it could be employed by individuals who would profit most by its practice lies in the possibility of its abuse.

Neither the church nor the state has accepted the experiment as having been worked out on a practical basis. The phenomenon of reproduction exhibits an inverse application in practical demonstration. Many individuals who are eugenically mated and

equipped to maintain large families refuse to accept the responsibility. Unfortunately, mass production is too frequently found among people who are financially incompetent and oftentimes without either physical or mental background.

It is occasionally true that a genius will emanate from this environment. Poverty and ignorance are the foundation upon which the structure of social delinquency, in the form of disease and crime, is builded, and a further contribution is the child of substandard mentality. The greater the number of individuals of this type brought into the world through unbridled reproduction, the greater the burden to organized society. It is the economic phase of this situation that will eventually cause society to give the problem of birth control more serious consideration than has been given to it up to the present time.

The problems in obstetrics have been more nearly solved than those in any other field of specialism. Any future development in the art of midwifery must be concerned in lessening the hazards of pregnancy and labor and in the relief of its attending pain. Puerperal infection has been practically eliminated from hospital practice except in those cases that were infected before admittance. Analgesia in obstetrics has made satisfactory progress within the last ten years. Gas-oxygen in combination with the synergistic action of magnesium sulphate and morphine, has been used in my practice more than five thousand times and has proved satisfactory in about 95 per cent of the cases. The Gwathmey method of giving ether by rectum has been satisfactory in the hands of some obstetricians.

#### POSTNATAL CARE

Since the immediate postpartum care is the period of hospitalization, it is directed toward the comfort of the patient and the prevention of complications. The puerperal period covers the time immediately following labor until the reproductive organs have returned to normal, which requires from six weeks to three months. If anything occurs to interfere with this normal physiological process it may rapidly become a pathological one.

The birth canal, teeming with numerous potentially infectious organisms, and the external genitalia should be treated as a surgical wound. Whether antiseptic solutions are employed or not is of small importance, as has been shown by Dr. Plass.

Before the baby is given the breast the nipple should be thoroughly cleansed and treated thereafter as a surgical wound. The practice of urging the baby to nurse over a long period of time before lactation is established should be condemned, even though it is recommended by many pediatricians. The heat and moisture in the baby's mouth and the traumatism incident to nursing invite the formation of blisters and fissures through which an infective organism may enter and cause a mastitis. The open-air treatment of a traumatized nipple, accomplished by the use of a small-gauged wire cage attached to the breast with adhesive tape, or the use of the lead or glass nipple shield, is indicated in this condition. It has been proved by McPherson that the patients who are given cathartics during the puerperal period are more prone to exhibit a rise of temperature than those who are not given purgatives. In cases that have not had a perineal repair three ounces of mineral oil may be given on the afternoon of the second day, followed by a morning enema which may be employed as indicated.

It is very unusual for a woman to give birth to her first baby without some traumatism to the birth canal. Occasionally it happens that there is no obvious interruption of the continuity of the mucous membrane of the birth canal but there may be a submucous separation of the levator muscles which, if not repaired, will later develop a pronounced rectocele.

In these cases I feel that it is the duty of the obstetrician to do a classical dissecting repair of the perineum. Ninety-five per cent of the patients who have had a perineorrhaphy do not empty the bladder voluntarily. Dr. Herbert Thoms believes that one should "never catheterize except as a last resort." The leading urologists of today have proved that one of the most frequent causes of cystitis and pyelonephritis is an overdistended bladder. I adhere to the latter observation and believe that catheterization should be done when the bladder is obviously distended, which usually occurs about once every ten hours.

#### ANEMIA

Anemia is a very important element in protracting the convalescent period in a puerperal patient. It is best treated primarily by preventing an undue loss of blood at delivery. This is effectively accomplished in the majority of cases by giving 1 c.c. of pituitrin immediately after the



birth of the baby. I have used this procedure in more than two thousand cases and have had no unpleasant experiences in the conduct of the third stage of labor. The time of the placental stage has been reduced one-half and the amount of blood lost reduced to one-third. The treatment of anemia is accepted to be that of a high caloric diet, liver, or the liver extracts, intravenous injection of iron cacodylate every third day, and blood transfusion.

Uterine displacement following labor is a contributing factor in the production of physical inefficiency in from 12 to 40 per cent of women during the first year following confinement. The condition occurs much more frequently in hard working women than it does in the so-called leisure classes, which accounts for the wide spread in statistics. Frequent pregnancies or forceps deliveries do not materially influence the development of backache except in those cases where the pelvic fascia has been overstretched and a condition of subinvolution exists. The care of the baby, where the mother has to stoop and lift it from a low bed and associated with a poor posture and stance of the individual, are frequent causes of backache. It is necessary to differentiate the backache due to gynecological conditions from the one due to sacro-iliac strain, which frequently occurs during pregnancy and labor and often demands the care of an orthopedic surgeon.

A routine pelvic examination should be made of all patients when they leave the hospital and at the end of six weeks. It is not unusual to find the uterus in a normal position at the end of fourteen days but when it contracts down into the pelvis a few weeks later it assumes a position of retroflexion or retroversion.

#### LACERATED CERVIX

The lacerated cervix is now recognized as a pathological condition which demands immediate repair. This procedure may be accomplished even in home deliveries, if the physician has sufficient industry and ingenuity to make provision for this emergency. If it is not repaired the invasion of scar tissue will definitely invite the development of a hypertrophy and cystic degeneration of the cervix. This condition is always associated with an endocervicitis that may involve the deeply penetrating racemose glands of the cervix and constitute as positive a source of focal infection as either the teeth or the tonsils. In multiparous women, hypertrophy of the cervix with cystic

degeneration and erosions is frequently observed; it may be effectively treated immediately after labor by removing the cervical mucous membrane with a pair of scissors. The majority of women who are examined at the end of six weeks postpartum will exhibit a considerable degree of cervical irritation. By the use of careful gynecological treatment and the milder surgical procedures in the office, all these cases can be improved and the less chronic ones be permanently cured. The degree of success to be obtained depends upon the selection of the case and the application of the proper treatment to that particular condition. One could not reasonably expect to cure a large hypertrophied cervix containing nabothian cysts and scar tissue by the application of medicated tampons. A backward displacement of a subinvolved uterus interferes with the circulation to the cervix and retards its return to normal.

After six months postpartum and the thorough use of hard rubber pessaries and depleting tampons, antiseptic applications and astringent douches, if the condition has not yet yielded other methods must be employed. A more definite treatment, but slightly more technical, to be performed in the office, is that of the cautery by the electric needle. The technic consists of cleansing the cervical canal of superfluous discharge and placing a 20 per cent solution of novocaine on a cotton pledget in the cervix. After about three minutes, longitudinal lines approximately 2 mm. apart may be drawn through the mucous membrane lining the cervical canal, including the erosions. The particular advantage in the use of this cautery is that it can be done at the office, practically without pain. At the end of the first week there is a slough and for a period of several weeks following this a profuse, foul-smelling discharge. There should be no bleeding associated with the cauterization but the patient should not be on her feet too much for the first forty-eight hours.

The actual cautery is probably the most definite method of obtaining the best results. This is a hospital procedure demanding an anesthetic. Three blunt end copper cauteries are used in graded sizes. The instrument should be at cherry-red heat when passed into the cervix. Great care should be taken to prevent contact with the lining of the birth canal. A very annoying but common complication following the use of the actual cautery is a

cervical stenosis. All cases of cauterization should be carefully treated with an occasional mild dilatation of the cervix with the idea of preventing this complication.

#### LACERATED PERINEUM

Where the perineum has been injured a repair should be done immediately. If there is much trauma with edema it may be deferred for five days. In cases where the original injury was not successfully repaired a secondary repair of the perineum may be done immediately following labor. The essential equipment for the performance of a successful perineorrhaphy consists of a degree of experience, a satisfactory knowledge of the anatomy, and the selection of the proper operation for the injury. The operation is quickly done after the technic of Dr. Howard Hill. The feature of this type of operation that makes it very adaptable to this condition is the rapidity with which the levator muscles can be exposed. A careful coaptation of the mucous membranes should be procured so as to prevent a lochial leak. It has been my practice for the last six years to use No. 2 forty-day catgut in the levator muscles. Manufacturers of catgut do not guarantee any absorbable suture to last more than three to five days in the presence of lochia.

These patients average from three to five days longer in the hospital, which is determined by whether the repair is done immediately after delivery or allowing five days to intervene between the delivery and the operation. The perineum should not be repaired in any case until after the placenta has been delivered. In the case of a severe second degree laceration, with the injury running up into the vaginal vault on either side, the best results are obtained by waiting five days.

#### SUBINVOLUTION

Subinvolution is rarely found in the well nourished, physically fit patient who has experienced a normal labor. It is rather frequently found in women who run a low blood pressure, are anemic and who have had a protracted, exhausting labor followed by a low grade infection. In this condition the uterus does not regain its normal size or tone, rests in the hollow of the sacrum, and bleeds when the patient resumes her household duties. The importance of normal lactation in promoting involution has been demonstrated in a convincing manner. In addition, the treatment should be directed toward the correction of such accompanying conditions as retroversion,

cervicitis and constipation, and it should be definitely known that there is no remaining placental tissue.

Rest in bed, associated with the use of depleting tampons and hot vaginal douches, are indicated. Placental-mammary tissue has been used by some investigators with very satisfactory results. The late Dr. A. J. Oschner recommended the use of large doses of gallic acid.

#### CONCLUSIONS

Doctor Lynch believes that every patient should be kept under postpartum observation for at least a year. A physician should carefully guard his puerperal patient and endeavor to prevent such conditions as cervicitis, subinvolution, retroversion, backache, anemia and occasionally a pyelonephritis which has become chronic following a toxemia of pregnancy.

I feel that the time is now here when the profession fully realizes the possibilities of prenatal and postnatal care, and eventually every small town and rural district will have facilities for this work. This can be effected by the employment of one or more nurses in every county who will be authorized to conduct clinics and get in personal contact with these patients, thereby lending a living element to the matter of soliciting their interest in their own behalf and in behalf of their offspring.

The education of women in the matter of proper care during this period is of vital importance to the nation. The medical profession supplies the basic knowledge and training for this educational work. The proper care of the pregnant woman is a fundamental service. Such care builds a race that resists disease and successfully assumes responsibilities. For these reasons it is the personal and professional duty of every physician to give, and demand that others give, the care that makes better babies and healthier mothers.

909 Professional Building.

### SELECTIVE SURGERY IN UTERINE PROLAPSE\*

H. S. CROSSEN, M.D.

ST. LOUIS

The intensive study given to uterine prolapse during the last few years has resulted in marked improvement in the surgical handling of these cases. The improvement extends in two directions. First, there is better apprecia-

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tion of the various pathological conditions present in the different classes of cases, and consequently better selection of operative methods to meet those conditions. Second, we have found that extensive prolapse may be effectively handled with less severe operative measures than were formerly employed.

Prolapse of the uterus, comprising the condition in which the uterus and often the bladder comes outside the body, is of course a very old subject. In fact, the condition was so obvious and so distressing that it was one of the first of human ailments to be noted and studied. In the earliest fragmentary records of human endeavor to mitigate afflictions there soon appear references to uterine prolapse. The efforts at treatment as recorded in literature down through the ages constitute a most interesting continued story. Much relief was given in many cases by the various nonoperative measures. The advent of antiseptic and aseptic surgery brought the possibility of really effective treatment even in the most severe cases. From that time to the present the progress in treatment has been rapid.

This progress in treatment may be divided into eras or periods of study of special features. Prolapse of the uterus and surrounding structures, including the vaginal walls and bladder and in some cases the rectum, constitutes a very complicated subject. The anatomical features alone have given rise to an extensive literature. The reason for this is apparent when we consider the number and variety of structures entering into the closure of the pelvic outlet. It has been a large task to work out the exact anatomical delineation of each structure involved even in the normal pelvis, and a much larger task to do so with the distorted and attenuated structures in extensive prolapse. Then in addition to the anatomical data there must be estimated the relative physiological importance of each structure in maintaining normal support at the pelvic outlet, and also the interdependence of the various structures in such support. This interdependence of supporting structures, each helping the other, is unquestionably an important feature in effective support.

Following the development of comparatively safe surgery, the progress in the treatment of severe uterine prolapse may be conveniently studied by dividing it roughly into three periods, in each of which special attention was given in a particular direction. These periods overlap more or less, but the preponderant direction of thought and study in each is fairly clear. Each attack on the problem brought out the necessity and underlying principles of the next more successful attack. The principal

feature of each of the three periods of study may be designated as follows: (1) Empirical surgery, (2) anatomical and physiological study, (3) selective surgery.

#### EMPIRICAL SURGERY

Following the development of antiseptic and aseptic surgery there was prompt application of its benefits to the patients suffering with extensive uterine prolapse. However, this application was made largely in an empirical way, as was necessary at that stage of anatomical and physiological study. Here was an obvious lesion, a prolapsed uterus, giving rise to distressing and serious symptoms. In most of the cases the age of the patient precluded future childbearing. Under these circumstances the natural conclusion and decision was to remove the prolapsed uterus and thus cure the prolapse. This plan of treatment was carried out in many cases, and ordinary vaginal hysterectomy for prolapse became a common procedure.

The reasoning in regard to this plan of treatment was good as far as it went, but it did not go far enough. It was true that after removal of the uterus there was no more prolapse of that organ, but in a large proportion of the cases there was prolapse of the other organs in that vicinity. The vaginal walls and bladder gradually came down and out, forming a protruding mass which often contained intestinal coils in its interior. The results of this treatment were still apparent when the author began the study of gynecology. He encountered and had to deal with cases of this extensive hernia of the pelvic contents, and found that the condition was much more troublesome to treat effectively than would have been the original uterine prolapse.

The defect in this plan of treatment was that it was only a half way measure. Though dealing radically with the prolapsed uterus it did not effectively close the opening through which that organ had been forced out. Later improvements were made to provide for closure or narrowing of the vaginal opening, with or without hysterectomy. These methods of closure approximated the tissues immediately about the vaginal opening. This improved the results to some extent, but gradual stretching and recurrence took place in such a large proportion of the cases that a plan of treatment giving more lasting results was clearly necessary.

#### ANATOMICAL AND PHYSIOLOGICAL STUDY

Increasing facilities for anatomical study and increasing realization of the failure of the available operative methods led to a more detailed and purposeful study of the anatomy of

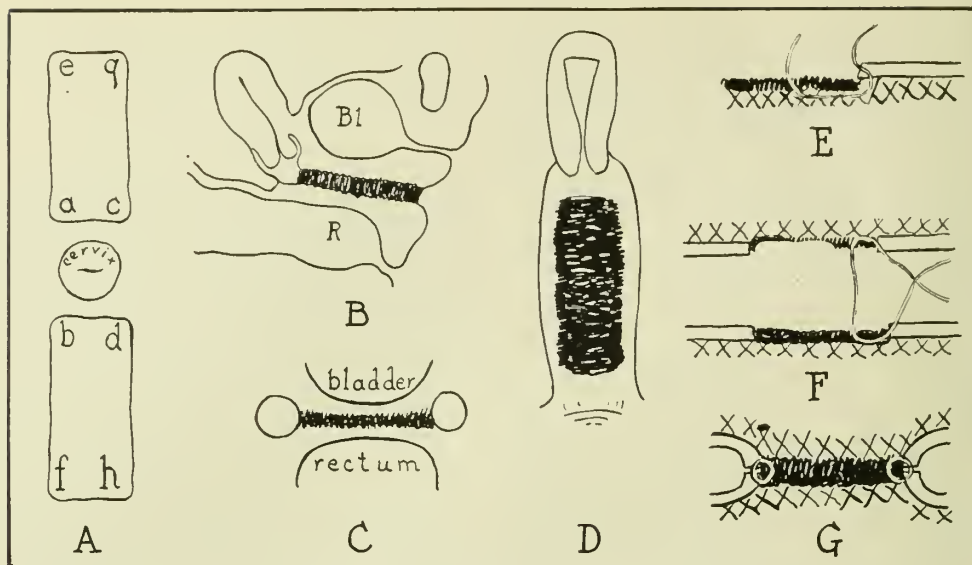


Fig. 1.

- Fig. 1. Details of the LeFort operation for partial closure of the vagina for prolapse.
- A. Showing the general relation of the rectangular denuded areas to the cervix. *e g a c* is the denuded area on the anterior vaginal wall, and *b d f h* the denuded area on the posterior wall. In suturing, *a* is brought to *b*, *c* to *d*, *e* to *f*, and *g* to *h*.
- B. Median anterior posterior section of completed operation. The vaginal walls are united over a long area, thus preventing prolapse.
- C. Transverse section of completed operation, showing the wide area of union of the vaginal walls and also the canal left at each side for escape of any uterine or vaginal secretion.
- D. The denuded area on the posterior vaginal wall and the canal on each side for the escape of any secretions.
- E. The suture around the margin of the denuded area is placed so as to secure approximation of raw surfaces without infolding of the undenuded surfaces.
- F. Showing the course of the approximating suture in the two walls.
- G. Cross-section of approximated surfaces, showing the suture at each margin and the canal on each side.

the structures at the pelvic outlet and of the function of the various structures in the complex problem of support. It soon became apparent that there were many structures involved in normal pelvic support and that all, or nearly all, of them were damaged in cases of marked prolapse. The clear demonstration that so many structures were involved in pelvic support and were injured in cases of prolapse led to the very reasonable conclusion that effective treatment must restore a considerable proportion of the injured structures. There followed a period of extensive operations designed to restore all reachable structures found damaged in prolapse. In their attempts at anatomical restoration, different operators employed different methods of approach and different methods of treatment of the damaged structures. Also, there was great difference of opinion as to the relative importance of various structures involved in pelvic support. The result was the development of a great many diverse and extensive anatomical operations, both abdominal and vaginal. Each operator seemed to feel that he had anatomical proof of the superiority of the particular operation he had devised or was using.

While the detailed anatomical study referred to had placed the operative treatment of

prolapse on a sounder basis, the large number of structures involved and the differing relative importance attributed to them by different operators produced a diversity of operations that was disconcerting. The author can testify from experience how disconcerting and confusing this multiplicity of operations was, for in making a systematic study of the subject some years ago he had a most difficult task in classifying the operative methods so as to show the relation of each operation to the anatomical structures involved in prolapse, and the general relation of each operation to the other operations employed in this condition. In addition to the confusing multiplicity and diversity of operative methods, the effort at complete anatomical restoration had made many of the operations more extensive and severe than was really necessary according to our present knowledge.

A large proportion of the cases of marked prolapse occur in aged patients in whom it is especially important to avoid unnecessary operative strain. Careful study of results from various operative procedures indicates that thorough treatment of certain easily reached structures is just as effective and much less dangerous than the attempted treatment of all the structures involved.



SELECTIVE SURGERY

The facts developed and the experience accumulated in the preceding periods became the foundation for the present period, in which the cases are individualized and carefully studied with a view to selecting that type of operation most suitable for the condition present in that particular individual.

It is now clear that no one operation is best for all cases of prolapse. In this, as in other pelvic lesions, the patient should have the benefit of selective treatment. The accompanying conditions differ much in different cases and require different operative methods. In each case the various pathological conditions present should be accurately determined, and then the operative method best meeting those conditions should be employed. The efficiency of the gynecologist in his service to the patient depends, first, on his correct estimate of just what operative procedures are required in that particular patient, and, second, on his execution of those procedures accurately and expeditiously, without loss of time and without unnecessary tissue disturbance. Here, as elsewhere, he must keep in mind the basic surgical

rule, to "accomplish what is necessary with the least danger to the patient."

Some patients have complications necessitating abdominal section, and in such cases it may be advisable to complete the operative work for the prolapse by that route, adding the usual pelvic floor repair. The prolapsed uterus may be so diseased that it must be removed, by abdominal or vaginal hysterectomy—the hysterectomy to be followed of course by adequate steps to restore the upper and lower supporting planes of the pelvis.

Experience has shown that uncomplicated prolapse of the uterus and bladder, no matter how severe, can be permanently corrected without the extensive abdominal operations or the radical vaginal operations frequently employed for it. Abdominal operation is required in prolapse only when there is some complicating condition necessitating abdominal section. Vaginal hysterectomy is required only when there is some complication necessitating removal of the uterus.

The subject is so large and the time so short that my remarks must be limited to certain types of cases. I shall speak only of the

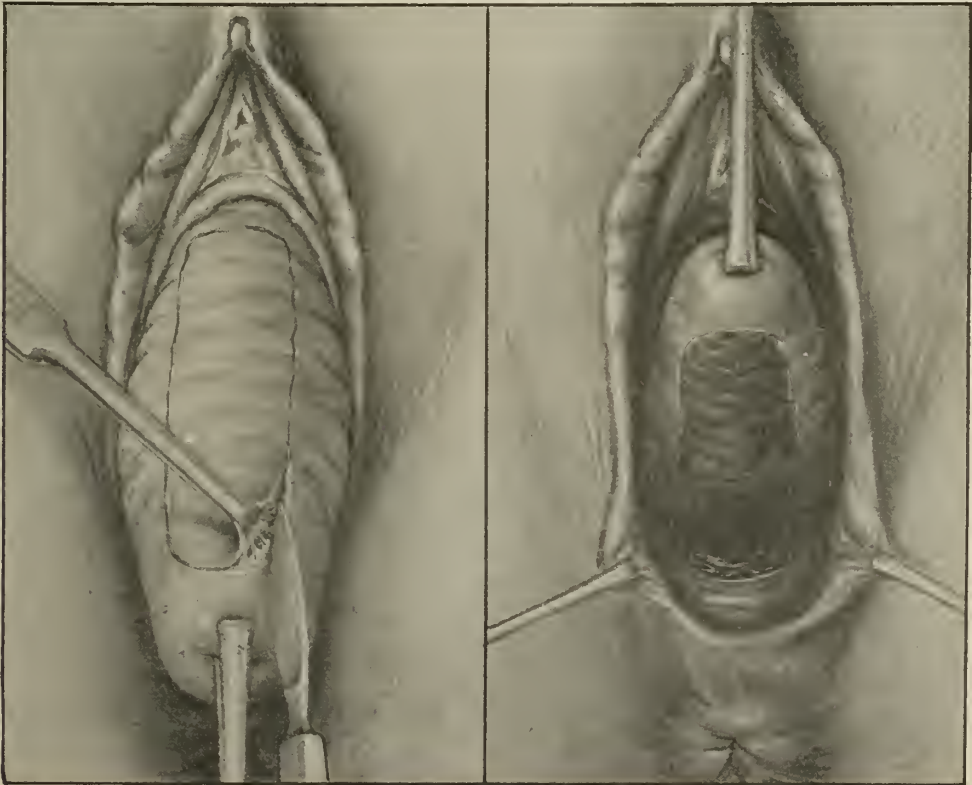


Fig. 2.

Fig. 3.

Fig. 2. Closure of the vagina by the LeFort method. Outline of the denudation on the anterior vaginal wall. The denudation should be as superficial as possible.

Fig. 3. The denudation on the posterior vaginal wall completed.

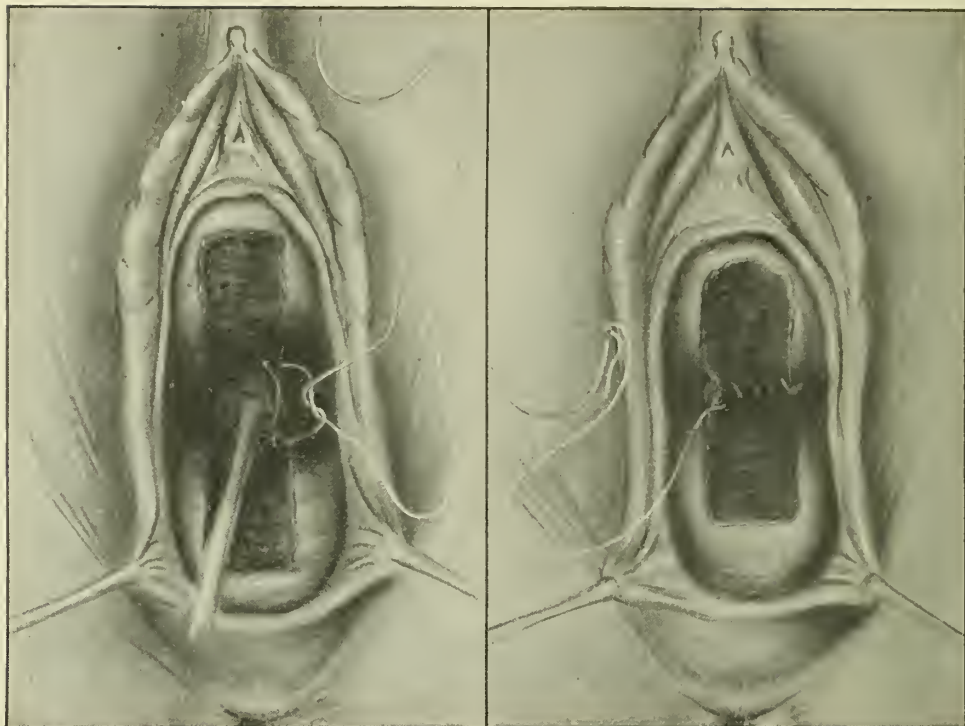


Fig. 4.

Fig. 5.

Fig. 4. Beginning the approximation of the denuded surfaces. Interrupted sutures may be used if preferred, but a continuous suture gives good approximation in much less time.

Fig. 5. Completing the approximation of the posterior margins of the denuded surfaces.

operative cases in which there is no complication requiring abdominal section nor removal of the uterus. This is the largest class and includes many of the most severe cases of prolapse of the uterus and bladder. In addition to the prolapse, there is frequently a rectocele. Culdesac hernia is another complicating condition that must be watched for.

These cases of extensive prolapse of the uterus and bladder can all be handled by vaginal operation, whether the patient be in the childbearing period or past the menopause.

The operative method most appropriate varies with particular conditions present. The following operations are indicated in the different types of cases of this class; they accomplish what is necessary without undue risk to the patient:

1. Vaginal shortening of broad ligaments with elevation and repair of uteropubic fascia.
2. Subvesical interposition of the corpus uteri.
3. Colpocleisis.
4. Culdesac hernia operation.

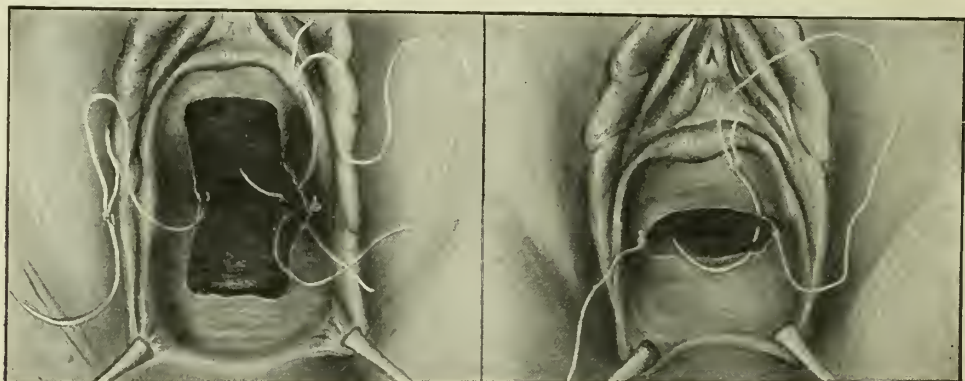


Fig. 6.

Fig. 7.

Fig. 6. The right margins are approximated about halfway down. Beginning the approximation of the margins on the left side of the vagina.

Fig. 7. Suturing the anterior margins together which will complete the approximation of the denuded surfaces.



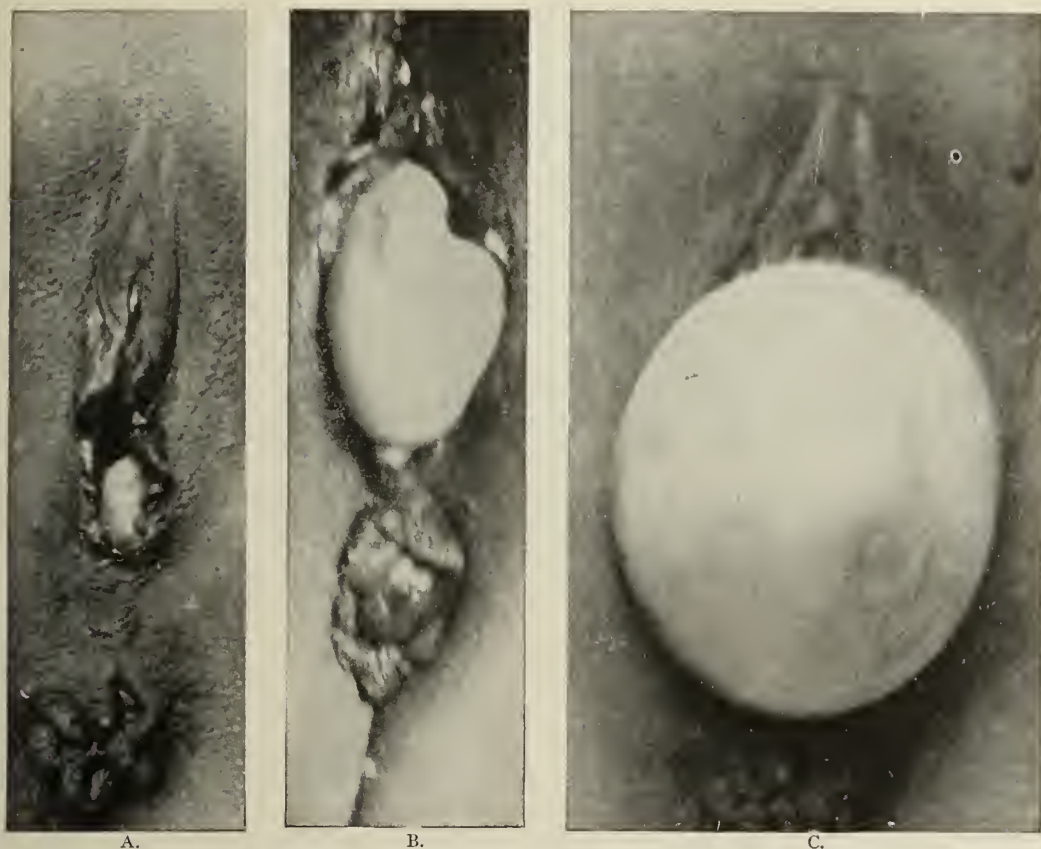


Fig. 8. Photographs of the culdesac hernia in one of the cases mentioned in the text. A. The hernia is inside with only a very small portion showing at the vaginal outlet. B. The hernia partly out. C. The hernia outside, forming a mass as large as a medium grapefruit.

1. *Shortening of Broad Ligaments With Elevation and Repair of Uteropubic Fascia.*—This combination operation was explained in detail in a recent article<sup>1</sup> in which I freely illustrated the various steps in technic.

This operation is applicable to the cases of extensive uterine prolapse under consideration. It is simple and effective. It accomplishes what is needed without unnecessary risk from extensive manipulations in the peritoneal cavity or from undue prolongation of the anesthesia. It may be carried out under local anesthesia when general conditions make that advisable. It is applicable both in the childbearing period and in later life. Conical excision of the cervix, when required for chronic cervicitis, works in very well as part of the operation.

When prolapse of the bladder is an important feature, particular care must be taken to make good elevation of the bladder and also side to side shortening of the uteropubic fascia. This is sufficient in the childbearing period, where the bladder prolapse is ordinarily not very marked and the repaired tissues have good tone.

The most severe cases of bladder prolapse occur after the menopause. In these aged patients the bladder prolapse is often the most important feature, both anatomically and from the standpoint of difficulty in treatment. In such cases the interposition operation is preferable.

2. *Subvesical Interposition of the Corpus Uteri.*—In the interposition operation the corpus uteri is interposed between the raised bladder and the vagina. It has been used extensively for such a long period that the technic is well known.

In the aged patient with extensive bladder prolapse the interposition operation has the distinct advantage that it interposes a firm body under the base of the bladder, instead of only approximated connective tissue which is sometimes quite atonic and stretchable in these patients.

The interposition operation is of course applicable only to patients past the menopause, in whom all chance of subsequent pregnancy is eliminated. Also, the cases for this operation should be carefully selected to avoid any condition of the corpus uteri that would interfere

1. Crossen, H. S.: Surg. Gynec. Obst. **48**:671 (May) 1929.



Fig. 9.

Fig. 10.

Fig. 9. A culdesac hernia and rectocele still to be taken care of, the uterine prolapse having already been taken care of by shortening the broad ligaments and elevation and repair of the utero-pubic fascia.

Fig. 10. The external appearance of the swelling from the culdesac hernia and rectocele.

with its being easily brought out or that might cause trouble after it is fastened under the bladder. Also, a previous cystocele operation might cause such extensive scar tissue under the anterior vaginal wall as to interfere with the required dissection. The interposition operation may be carried out under local anesthesia when necessary.

3. *Colpocleisis*.—Closure of the vagina by the Le Fort method is an old operation which is ideal for certain cases. It is indicated in the aged handicapped patient in whom subsequent coitus need not be considered, and when suffi-

cient relief cannot be given by pessary treatment. The prolapsing uterus and bladder are kept in the pelvis by sewing the vaginal walls together. The denudation of the vaginal walls is superficial and may be easily accomplished under infiltration anesthesia.

Recently I have been studying this operation and have had made a series of drawings to clarify the steps in the work. Figures 1 to 7, with accompanying legends, show various details of the technic.

4. *Culdesac Hernia Operation*.—Culdesac hernia is a very troublesome complication of

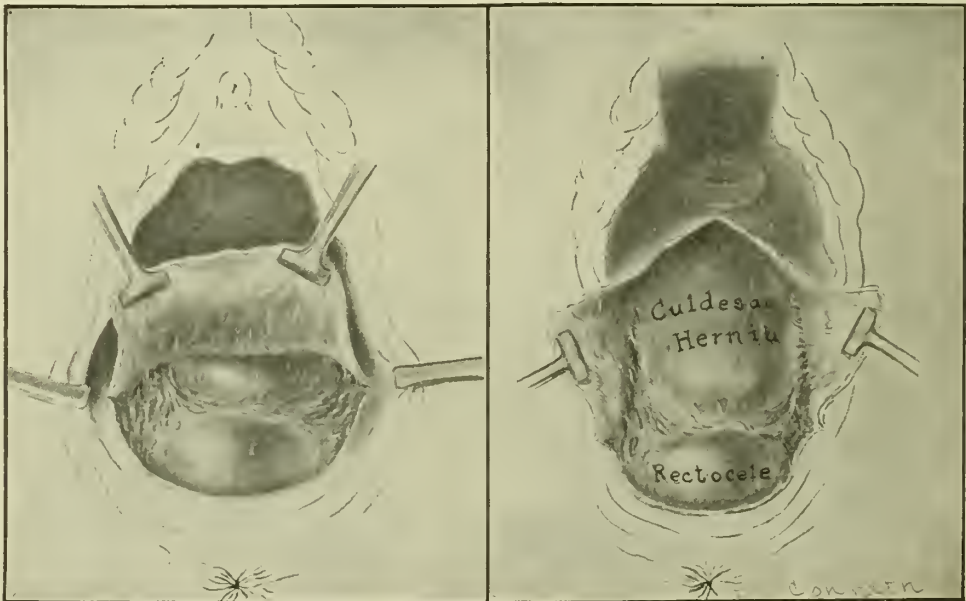


Fig. 11.

Fig. 12.

Fig. 11. The culdesac hernia fullness coming into view above the rectocele, as the vaginal flap is raised for pelvic floor repair.

Fig. 12. Combination of rectocele and culdesac hernia (called also vaginal enterocele). (Modified from Ward—*Trans. Woman's Hospital*.)



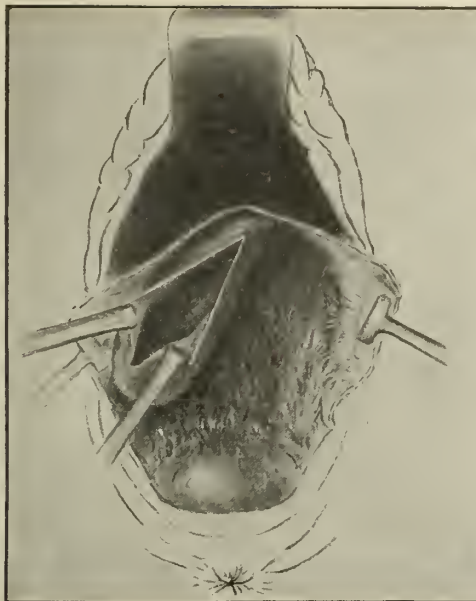


Fig. 13.

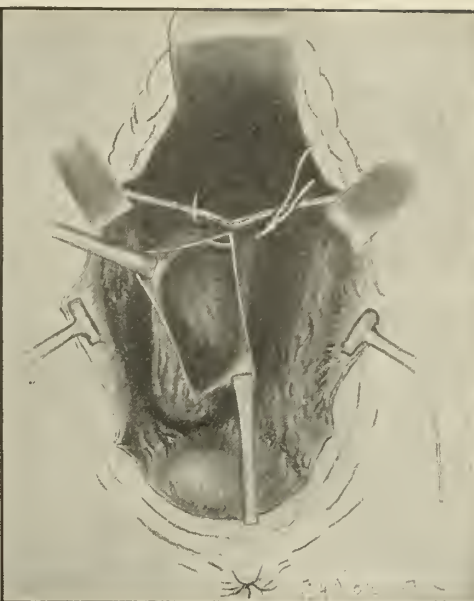


Fig. 14.

Fig. 13. The culdesac-hernia sac has been separated from the vaginal wall and rectal wall and opened.  
Fig. 14. The contents of the sac have been pushed up into the peritoneal cavity (which maneuver is aided by elevating the patient's hips) and the neck of the sac is being ligated.

uterine prolapse. Overlooking this condition or not dealing with it effectively, is one of the causes of failure in prolapse operations.

Culdesac hernia, or posterior enterocele, as it is sometimes called, is due to a pushing downward or a dragging downward of the posterior peritoneal culdesac (culdesac of Douglas). As the pouch of peritoneum is gradually pushed

downward, it separates the vagina from the rectum. This process may go on until the vagina is separated from the rectum all the way to the perineum. In prolapse cases this process of separation is favored in two ways—(a) by the laxity of the tissues, which favors downward displacement of the culdesac from intra-abdominal pressure, and (b) by the pro-

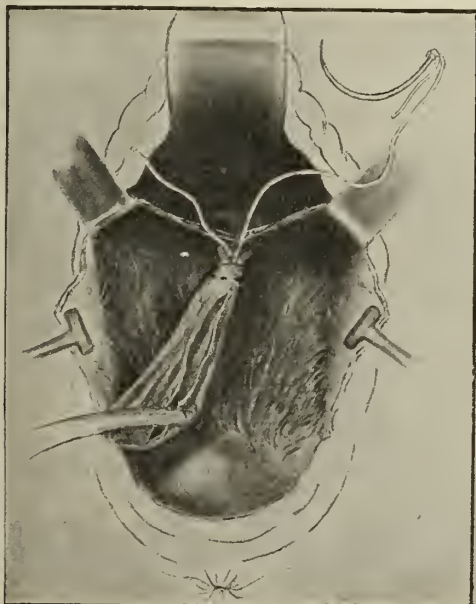


Fig. 15.



Fig. 16.

Fig. 15. The neck of the sac has been securely ligated. The sac is now to be cut away along the line indicated.  
Fig. 16. The stump of the sac is being sutured securely in the tissues back of the cervix. Then the rectocele will be taken care of by the usual infolding with varied sutures.

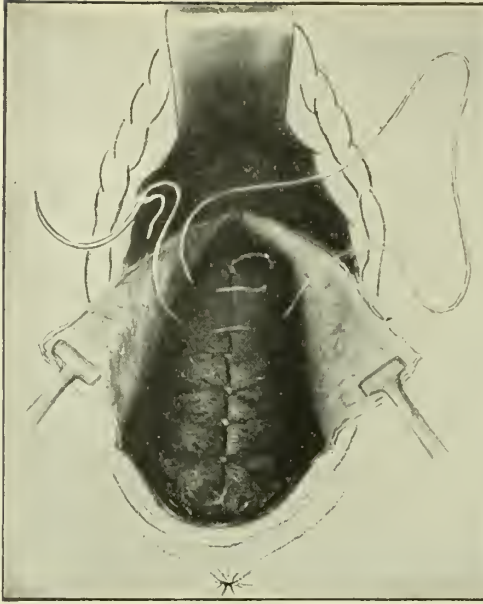


Fig. 17.

Fig. 17. Suturing the rectocele and other deep tissues.

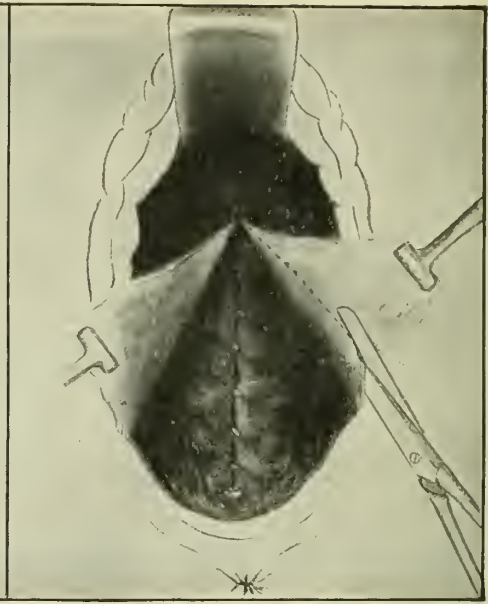


Fig. 18.

Fig. 18. Trimming away the excess of vaginal wall. If the culdesac hernia has been large, this trimming will probably need to extend all the way to the cervix.

lapsing uterus and vaginal wall dragging the culdesac peritoneum downward.

Failure to recognize this condition when it is present will result in great disappointment from the prolapse operation. The patient will return after a time complaining of a return of the prolapse, and examination will show a projecting mass.

I recall two interesting cases of culdesac

hernia. In one the hernia was not recognized at the original prolapse operation and appeared later as a recurrent protrusion. In the other case the hernia was recognized and taken care of during the prolapse operation.

#### REPORT OF CASES

Case 1. This patient was 66 years of age. Four years previously had had an extensive operation for uterine prolapse. Some months after the opera-

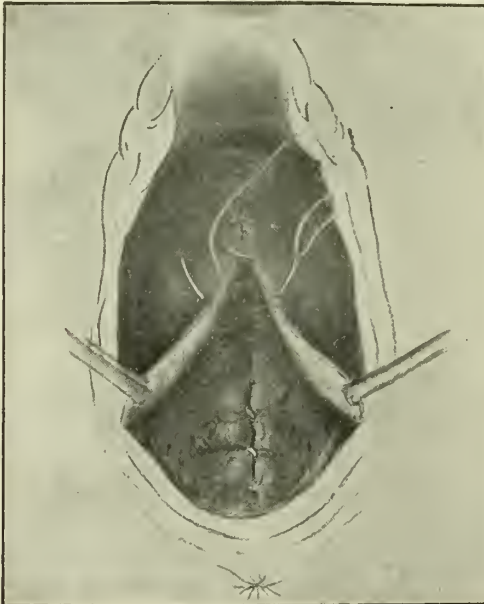


Fig. 19.

Fig. 19. Closing the high portion of the vaginal wound.

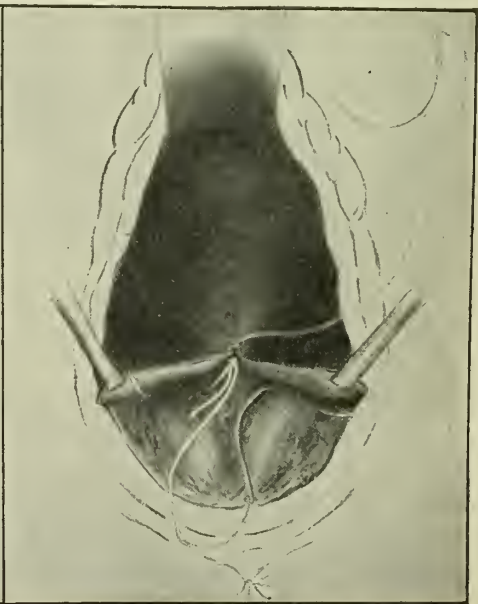


Fig. 20.

Fig. 20. Beginning the suture of the levator sling for pelvic floor support. The repair of the relaxed pelvic floor is then completed in the usual way.



tion the patient noticed a small protrusion at the vaginal outlet and consulted Dr. F. P. McNalley. In spite of palliative measures the protrusion gradually increased and when I saw the patient in consultation the swelling was very large, as shown in figure 8.

The patient was stout and had a bad heart and was a very poor operative risk. However, she was suffering so much that Dr. McNalley and I considered the operation imperative. We carried out the operation, described later, under local anesthesia, with excellent immediate and remote result.

Case 2. This patient was seen in consultation with Dr. Willis Hall. The patient had an extensive prolapse of uterus and bladder. She was 69 years of age and a rather poor operative risk, and persistent efforts were made to get along with palliative measures. A pessary held up the bladder fairly well but, with this held up and the pessary in place, there was still a protruding mass which came down back of the pessary and ballooned out the posterior vaginal wall. A careful examination showed that this posterior protrusion was a culdesac hernia, complicating the prolapse of the uterus and bladder. There was so much disturbance in spite of palliative measures that operation finally became necessary. In this case the uterine prolapse was treated by vaginal shortening of the broad ligaments, and then the culdesac hernia was taken care of as later described.

The outside appearance of a culdesac hernia is much like that of a rectocele, for which it may easily be mistaken. A perineal prominence may be caused by either a rectocele or a culdesac hernia. There may be a combination of the two, as shown in figures 9, 10. Digital examination per rectum will show whether or not there is a rectocele. Even though there be a rectocele if it is not sufficiently marked to account for all the peritoneal prominence, a complicating culdesac hernia should be suspected.

Further information is obtained as the vaginal flap is raised in the pelvic floor repair. If a culdesac hernia is present, the anterior wall of the hernial sac is attached to the under surface of the vaginal wall and may be recognized if watched for as the vaginal flap is separated upward.

The treatment for the culdesac hernia is best carried out during repair of the pelvic floor. After the usual incision and raising of the vaginal flap as for regular repair of the floor, the sac of the culdesac hernia is identified, as in figures 11, 12, and stripped from the rectum. If there is any question as to whether the exposed sac is a hernia or a rectocele another rectal examination should be made at this stage. After the hernia sac is stripped up and opened (fig. 13), it is ligated at the neck and cut off (figs. 14, 15) and the stump is securely fastened in the connective tissue (fig. 16). The repair of any accompanying rectocele is then carried out (figs. 17, 18, 19) and after that the regular repair of the pelvic floor (fig. 20).

University Club Building.

## SEDIMENTATION TEST IN PELVIC DISORDERS\*

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It has been several years since the introduction of the sedimentation test but as yet it has not been accorded the general usage it deserves. I was particularly impressed with its use in gynecological work in foreign hospitals. In many places it is recorded on the charts as regularly as the blood count, urinalysis, or other laboratory procedure. In this country many of the leading gynecologists have reported favorably on the test. My personal experience with it has been during the last four years and I have found it to be of great value.

A few words might be said about the technic of the test. It is based upon the settling rate of the blood cells; this rate is increased or diminished in certain physiological and pathological conditions. At first it was advocated as a test of pregnancy, but since it becomes positive only after the twelfth to the sixteenth week part of its importance as a test of pregnancy is lost. It has been found also that acute inflammatory pelvic conditions increase the speed of settling. The technic is simpler for the average physician than the blood count. Two c.c. of 5 per cent sodium citrate is drawn into a syringe (Luer tuberculin preferably) followed by .8 c.c. of blood from the forearm. The mixed specimen is placed in a small capillary tube and the time of starting the test recorded. The tube is observed and the time taken when sedimentation has reached the 18 mm. mark on the tube. A normal reading may be considered as 120 minutes or over. An arbitrary standard of the settling rate of inflammatory conditions may be given as follows:

Acute inflammations, less than 30 minutes.

Subacute inflammations, 30 to 60 minutes.

Chronic inflammations, 60 to 120 minutes.

Normal, 120 minutes up.

Pregnancies, 30 to 45 minutes (beginning after 12th week).

Other modifications of the test have been employed. The procedure as described above is based upon the time of settling a measured distance. The distance the blood settles in a measured time may also be used. In this, a small capillary tube resembling a blood count pipette is used. The finger drop method of obtaining the blood is used, the dilution remaining the same and the distance the blood has settled read at the end of one hour. The normal distance averages 6 to 8 mm. as com-

\* Read in the Symposium on Gynecology and Obstetrics at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

Table 1

Case No.	Diagnosis	Average Leukocyte Count	Method		Special Notes
			Distance in Mm. After 1 Hour	Time in Minutes Reached 18 Mm.	
	Normal women		6 to 8	120 up	
	Pregnancy (after 16th week)		25 to 35	45 down	
55398	Mechanical pelvic conditions,	7400	12	120	All had symptoms of mild inflammation, pelvic pain, backache, menstrual disorder, vaginal discharge, etc.
58970	—birth injuries (secondary),	7000	9	115	
55783	cervicitis, etc.	8400		150	
54355		9000	12		
50474		6000	8		
55844		7200	12		
57198		8200		60	Showing only slight variation from normal sedimentation test
54197		6000	10		
55134		8000	12		
56179		8600	7	165	
54050		10000	5	420	
55283	Polyp, chronic cervicitis	5800	14		
50283	Polyp, cervicitis	9600	10		
54359	Polyp (large), cervicitis	7600	12		
58773	Uterine hemorrhage (post-abortive)	8000	12	135	
55875	Ovarian cyst (size of orange)	7000	10	120	
57278	Myoma (intramural)	6000	6	130	
57823	Myoma (retroflexion with fixation)	5000	14	105	
55445	Myoma (large)	5400	7	120	Scant bleeding; believed herself pregnant
56967	Uterine hemorrhage (pregnancy 12th week)	8600	17	75	Suspected submucous fibroid
57584	Myoma and pregnancy (12th-14th week)	9000	22	45	More rapid test shown than for fibroids alone
54367	Dermoid (ovarian)	7900	6		Typical findings (curly red hair, etc.)
58991	Ruptured ovarian cyst	10200	27	30	Much peritoneal irritation
57981	Chronic salpingitis	5800		150	Reported 6-27-27 with acute salpingitis
57493	Chronic salpingitis	6400	14	75	Acute symptoms 6 months before
53091	Subacute salpingitis	6000	20		Several months' standing
55123	Acute salpingitis	6000	29	10	Operation against test; many fresh adhesions present
58562	Salpingitis, right ovarian cyst	8600	25	40	
Mrs. W.	Acute salpingitis		26		Included to show rapidity in test
Mrs. L.	Acute salpingitis		33		Included to show rapidity in test
53283	Tubal ovarian abscess	12000	25	35	
56281	Pelvic abscess (large)	18000		15	Infection from stem pessary
				35	
57211	Puerperal sepsis	9400	32	20	
Mrs. M.	Pregnancy or climacteric (?)		26		Free flow at intervals; age 42; pregnant 15 weeks
58962	Carcinoma cervix (late)	17000	33	25	
Many tests	Pregnancies after 16th week		average 25-35	average 30-35	

## Second Test. Later. Showing Rates in Order of Frequency

Case No.	Diagnosis	Average Leukocyte Count	Method		Remarks
			Time in Minutes Reached 18 Mm.	Distance in Mm. in 1 Hour	
66469	Uterine displacement, mechanical pelvic repair, etc.	7600	180		Uterine suspension
70969		5500	240		Uterine suspension
72133		8400	120	9 mm.	Hyperplastic endometritis
72974		7000	120	12 mm.	Prolapsus uteri
71690		8500	210	10 mm.	Endocervicitis
73269		8200	210	8 mm.	Suspension and perineorrhaphy
73287		8000	165	8 mm.	Suspension and repairs
69654	Myoma of uterus	9400	240		Hysterectomy
65974		13000	255		Hysterectomy
66217		15000	60		Died of gonorrheal bacteria endocarditis
72224	Ovarian cysts	11000	165		Hysterectomy
73527		10300	90		Hysterectomy
69723		5350	150		Laparotomy
70624		5000	95		Laparotomy
73651		6900	108		To be operated on. Abdomen resembles 4½ months' pregnancy
67312	Salpingitis,—acute, subacute, chronic	11600	15	24 mm.	Suppurative type
71715		8500	22		? of acute appendix. On operation appendix was adherent to right tube
			36 after 4 days' rest		
69596		4300	30		Subacute salpingitis
70555		5500	60		Chronic, nonsuppurative
70654		7400	135		Chronic, nonsuppurative; gonococci isolated by culture from tubes
73616		12600	45		Operation awaiting subsidence of acute symptoms
		5-4-30	5-4-30		
		10000	93		
		5-10-30	5-10-30		
69722	Abscess	18800	20	24	Pelvic abscess
71956		15500	15	24	Tubal ovarian abscess; gonococci isolated by culture



pared with inflammatory conditions running the distance up as high as 25 to 35 mm. I have used this test a great deal at the office, but the time method is the one I use at the hospital.

The opinion of other authorities regarding this test is of interest. Baer and Reis, reporting on a series of cases at the Michael Reese Hospital, Chicago, state that in pelvic diagnosis a negative test over 120 minutes rules out pelvic infection. They also maintain that in none of the cases having a sedimentation rate over 60 minutes was an active virulent infection found at time of operation. Friedlander, of Detroit, says that as a diagnostic aid alone, it is untrustworthy in pelvic conditions, but he believes it is more delicately influenced than the leukocyte count. Polak, of Brooklyn, believes in this test and has been quoted several times as saying, "The sedimentation test never lies."

This test in my experience has been of value in giving us another rule to apply in choosing a proper time to operate. It is quite universally agreed that cases of acute adnexal inflammation should not be operated upon during their most acute stage. This test, taken of course in connection with the leukocyte count and the temperature curve, helps to weed out these so-called "hot cases." If the reading is back to normal, active germs will not be encountered, no drainage will be required at operation, and the mortality and morbidity rate will be lowered. Dr. Matthews, of the Long Island Hospital, who recently spoke in Kansas City, declared their rule was to wait until the rate was 90 minutes or over before operating. This is somewhat higher than most gynecologists believe to be necessary or always possible.

Another very important use for this test is in differential diagnosis. All of you know of cases operated upon for tumors which turned out to be pregnancies. In certain types of individuals with atypical clinical symptoms even the close observer may be at a loss on the diagnosis. In a large number of tests on prenatal cases in various stages of gestation I found the rate began to lower definitely about the 12th week and was consistently rapid from the 16th week on. Other conditions causing the same amount of enlargement, such as uncomplicated intramural fibroids, ovarian tumors, dermoid cysts, etc., usually give a lower rate of sedimentation which is quite often of value in making the differential picture. A case report of interest in this regard follows:

#### REPORT OF CASE

Miss K., short, stout build, aged 24, single, reported at my office for examination. She stated that another gynecologist had diagnosed her condition as an ovarian cyst. I found a round mass above the pelvic brim which the patient could press

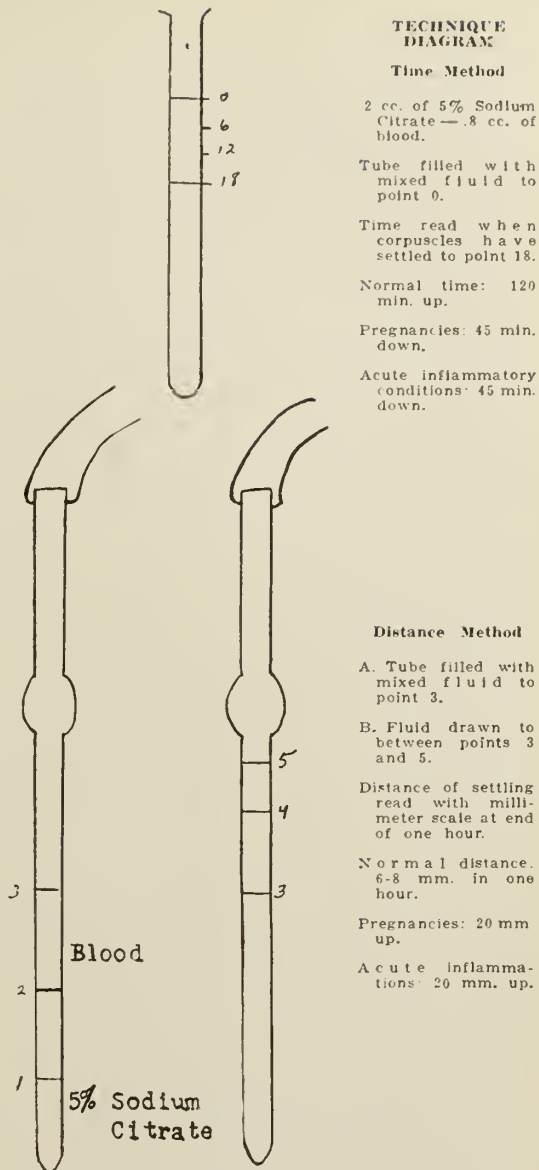


Figure 1

upward by pushing above the symphysis. The menstrual history was confusing, she having been subject to periods of amenorrhea since puberty. A sedimentation rate was run on her and for comparison also on a girl friend who accompanied her. The rate was twice as fast as that of her companion and a diagnosis of pregnancy was made. She denied all possibility of such a condition and left. She next consulted a general surgeon, deceived him, and received another diagnosis of ovarian cyst. Roentgenograms of the pelvis confirmed his diagnosis so the surgeon opened the abdomen and found a normal pregnancy. This increased my respect for the correctness of the test.

The rapidity with which various pelvic conditions settle out is of interest. All cases with pelvic complaints which have been operated on and diagnosis confirmed have been included in

this group. I found that they follow in about this order, viz:

- A. Normal women.
- B. Mechanical pelvic conditions (displacements, birth injuries, cervicitis, mild inflammations).
- C. Uncomplicated myomata.
- D. Pelvic cysts (ovarian, dermoid, etc.).
- E. Chronic salpingitis.
- F. Subacute salpingitis.
- G. Pregnancy (after 12th to 16th week).
- H. Degenerative carcinomata.
- I. Acute salpingitis.
- J. Pelvic abscess, puerperal infection, etc.

A study of the tables will show that these cases bear out this order, which agrees very closely with tables of other observers.

#### CONCLUSIONS

There should be more general use of this test for the following reasons:

- 1. Simplicity of test.
- 2. Definite variation from the normal rate when influenced.
- 3. Value in differential diagnosis of pelvic complaints.
- 4. Aid in determining the proper time to operate in acute inflammatory disease.
- 5. Definite prognostic value on virulence of infection and checking its subsidence or improvement.
- 6. It must be emphasized that the test is only one prop on which to rely and does not take the place of the leukocyte count, study of temperature curves and the other essentials of diagnosis.

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## UTERINE HEMORRHAGE\*

CHARLES D. O'KEEFE, M.D.

ST. LOUIS

The numerous causes of uterine hemorrhage with special mention of the more important causes, will be briefly outlined.

The factors which cause menorrhagia, excessive bleeding at the regular menstrual period, and metrorrhagia, intermenstrual bleeding, will be discussed together. In order to systematize this discussion the causes will be divided into three groups, namely, constitutional, local and endocrine.

#### CONSTITUTIONAL CAUSES

Under constitutional causes a menorrhagia is very frequently found in all the general acute infections, such as, pneumonia, influenza, ty-

phoid fever, malaria, cholecystitis, appendicitis, pulmonary tuberculosis, thyroiditis, etc. If the onset of any of these infections comes at the menstrual time the menorrhagia is usually marked. A subacute appendicitis is very likely to become acute during menstruation because of the increased congestion which in turn will cause menorrhagia and dysmenorrhea. These menstrual disturbances are very important in the diagnosis of an appendicitis of long standing. In other infections, fevers, etc., the primary menorrhagia, of course, will give way to an amenorrhea when the disease has progressed sufficiently to impair the patient's general health and nutrition.

Constitutional conditions, such as diabetes, syphilis, nephritis with high blood pressure, allergy, blood conditions such as anemia, hemophilia, thrombocytopenic purpura, etc., may cause marked menstrual disturbances. Here again, amenorrhea may result when the condition has become severe; however, menorrhagia or even metrorrhagia is a very frequent finding.

I have seen cases of diabetes where the menorrhagia was so marked that roentgen ray treatment was necessary to retard ovarian function. It is well known that a greater sugar spill takes place at the time of menstruation, making it difficult to regulate the dosage of insulin at that time. I recall one case in particular where the menstrual flow was a very important factor. The insulin was increased at that time; if she flowed moderately heavy, an insulin reaction resulted. When the insulin dosage was diminished and she happened to flow very profusely, diabetic coma resulted. This patient was easily controlled after an amenorrhea had been established by radiation.

Syphilis is a very important cause of menorrhagia. Although we see many cases of syphilis with no effect whatever on menstruation, occasionally we find a very marked menorrhagia due entirely to lues. It is always well to get a Wassermann in these troublesome cases of menorrhagia because they will not react to medication or curettage but can be promptly controlled by treatment of the syphilis. I had one case, aged 15, that I treated in the endocrine clinic for six months for menorrhagia without any result. Syphilis was not suspected because of a known negative Wassermann in the mother; however, a four plus Wassermann was discovered and the menorrhagia promptly cured by luetic treatment. I have seen cases that had been curetted as many as three times without improvement but were quickly relieved by intensive treatment of the syphilis.

Hemophilia in women is rare, but when encountered menorrhagia is usually a very diffi-

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cult problem. Recently I had the opportunity of following a case diagnosed thrombocytopenic purpura. The patient was anemic, with a low platelet count, hemorrhagic areas over the body, and a very marked uterine bleeding that had been present for about five weeks. Curettage and packing controlled the hemorrhage but did not entirely stop it. Treatment directed to the constitutional condition controlled the uterine bleeding.

High blood pressure should always be considered as a cause of uterine bleeding. Especially is this true in women beyond the menopause. Although pelvic findings may be normal a diagnostic curettage should always be done to rule out carcinoma of the fundus before too much attention is directed toward the treatment of the high blood pressure. Many such cases will show normal endometrial tissue and the bleeding can be controlled by directing the treatment to the hypertension. I would like to sound a warning here against the rather common tendency of subjecting these women to complete hysterectomy on the assumption that carcinoma or submucous myoma of the fundus exists. It must be remembered that these cases are poor operative risks and should be operated upon or radiated only after a positive diagnosis of cancer has been made by curettage.

Recently I have seen some known allergic cases with marked menstrual disturbances, such as frequent and prolonged periods with marked dysmenorrhea. The field is rather new to the gynecologist, but we will very probably be able, in the near future, to explain some of the obscure causes of uterine bleeding as allergic.

Undoubtedly uterine hemorrhage in some cases is due to nervous conditions. The vasomotor nerves of the pelvis are linked up with the psychic centers and therefore pelvic stimulation may be expected following marked emotional changes. Novak reports a case of a woman who had always menstruated regularly. She had a normal period on December 23, and on December 26, when the flow was abating, a Christmas tree in her home caught fire; the woman received a severe fright and a hemorrhage resulted lasting six to eight hours.

Many cases are encountered where menstruation has been affected through nervous unrest because of a fear of pregnancy. This condition is quite often encountered in young girls where indiscretion is followed by repentance and anxiety. It is not unusual, in such cases, for the following menstruation to be delayed a few days and then flow profusely when menstruation begins. This menorrhagia may be explained entirely through removed

inhibitions on the vasomotor nerves to the pelvis, controlled through the psychic centers.

#### LOCAL CAUSES

Pathological changes in the pelvis causing uterine hemorrhage will be considered on an anatomical division of the pelvic structure into four groups, cervix, fundus, tubes and ovaries.

1. *Cervix*.—The common causes of hemorrhage resulting from cervical conditions are erosion, ectropion, polypi, endocervicitis, tuberculosis, syphilis and carcinoma. Any of these conditions may cause menorrhagia or metrorrhagia, the latter especially being stimulated by douching, coitus or examination. Erosion and endocervicitis may bleed on manipulation during examination or result in a blood streaked leukorrhea. Tuberculosis of the cervix is usually secondary and often an amenorrhea has been produced before the cervix is involved. However, if primary, bleeding may be expected. The bleeding is usually more pronounced in carcinoma, polypi and syphilis, the latter being rather a rare condition. It must be remembered that any abnormal bleeding from the cervix itself should be regarded as a possible early malignancy. In early cases of carcinoma a diagnosis can only be made by biopsy and microscopical study. One is never justified in treating a suspicious looking cervix by medication or douches before ruling out cancer. An early carcinoma of the cervix can be cured, but extension is rapid and metastasis soon renders the case inoperable. I have often made the statement, which will be considered radical by many, that when a positive diagnosis of carcinoma of the cervix can be made by inspection or palpation the case is inoperable. No doubt, there are exceptions, but we should train ourselves and our students to strive for an early diagnosis through microscopical study.

2. *Fundus*.—The fundus may be the cause of abnormal bleeding because of retained gestation products, glandular hyperplasia of the endometrium, endometritis, retrodisplacement of the uterus, myoma, hydatidiform mole, chorio-epithelioma, carcinoma, sarcoma, etc.

One of the most common causes of uterine hemorrhage is incomplete abortion; especially is this true if there has been a complicating infection.

Glandular hyperplasia of the endometrium is usually encountered just after puberty or just before menopause and more frequently at the menopause, although it may occur at any time. It manifests itself by marked increase in amount and duration of the regular menstrual flow. In spite of its use as a primary diagnosis, glandular hyperplasia of the endometrium

is secondary to some other cause. The treatment should be directed toward the primary cause. At times the cause cannot be ascertained and then it becomes paramount to control the hemorrhage by local measures. Curettage should always be done near the menopause to rule out malignancy. As a means of curing glandular hyperplasia curettage is not very successful, repeated curettements often being ineffectual. Sometimes radium treatment must be resorted to—a therapy which should always be handled with extreme caution in young women because of permanent injury to the ovaries. We must always bear in mind that patients of the same weight, age, etc., often react differently to the same dosage of radium.

Endometritis will undoubtedly cause uterine bleeding in certain cases, such as pyometra, postpartum infection, pneumococcus infection and tuberculosis. It must be remembered, however, that chronic endometritis has long been used as a clinical diagnosis in those cases where the true condition was unknown. It does occur, but the great majority of the cases can only be diagnosed by the microscope.

Hydatidiform mole usually appears in the early months of pregnancy, the fundus becoming larger than the period of gestation warrants. Uterine bleeding takes place with the passage of grape-like vesicles. Chorio-epithelioma may follow the presence of a mole, an abortion, or normal pregnancy. Continued uterine bleeding is the important factor.

Myomata are a frequent cause of menorrhagia, either by direct encroachment of the tumor on the endometrial cavity, or indirectly causing pelvic congestion through pressure on the pelvic structures. Although the bleeding cannot be described as a classical picture corresponding to the different types of myomata encountered, the submucous myomata and the intramural myomata usually cause an increase in the menstrual flow. The subserous myomata only cause bleeding by size and pressure. At times large myomata are found that cause very little increase in the menstrual flow, while smaller tumors may give rise to an alarming hemorrhage. Intermenstrual bleeding in these cases should make one suspect beginning malignancy.

Carcinoma of the fundus may cause both menorrhagia and metrorrhagia. Although hemorrhage in carcinoma of the fundus is seen somewhat less often than in the cervix it is, nevertheless, the most important clinical finding. A diagnostic curettage should be done in all questionable cases. It might be well, at this point, to sound a warning against the assumed cancer age. It is true that cancer occurs more frequently near the age of meno-

pause, yet many cases have had a delayed diagnosis because they occurred in young women. Intermenstrual bleeding, especially when accompanied by loss of weight, increased leukorrhea, etc., should always be considered a possible indication of malignancy. This should be ruled out or confirmed by curettage and microscopical study.

3. *Tubes*.—There are three distinct conditions in the tube that may cause uterine hemorrhage; infection, tubal pregnancy and new growths.

Perhaps the most common cause of uterine hemorrhage, which manifests itself by frequent and prolonged bleeding, is infection. Patients with acute gonorrheal pus tubes often give histories of menstruating profusely twice a month. This is true of other tubal infections, such as streptococci, tuberculosis, etc., although less marked. In tuberculosis of the tubes, perhaps the acquired dysmenorrhea is a more constant finding than abnormal bleeding.

The diagnosis of tubal pregnancy is made more frequently through the history of uterine hemorrhage than by actual physical findings. Constant or intermittent uterine bleeding following a period of amenorrhea with or without pain, should always be suggestive of a tubal pregnancy.

New growths of the tubes, malignancy in particular, will cause uterine bleeding. However, these are not frequently encountered unless secondary to some other pelvic or abdominal lesion.

4. *Ovaries*.—The most important findings in the ovary showing gross pathological changes that may cause uterine hemorrhage are infections and new growths.

The infections are usually secondary to involved tubes and may cause ovarian stimulation to uterine hemorrhage through pelvic congestion or by retention follicular cysts.

Ovarian new growths may be small retention follicular cysts, corpus luteum cysts, large single or multiple cysts, dermoids or malignant changes.

Corpus luteum cysts should as a rule create an amenorrhea, but a few observers have reported increased uterine bleeding. Small retention cysts will practically always be accompanied by menorrhagia. Large single or multiple cysts of the ovary may cause an increased flow, but the findings are very inconsistent. During the early development, menorrhagia or even metrorrhagia should occur. However, as the cysts enlarge, causing destruction of ovarian tissue, scanty menstruation or amenorrhea may result.

Dermoid cysts cause menorrhagia. The development is slow and an increased flow over a



period of time along with physical findings is an important factor in the diagnosis.

Malignancy of the ovaries does not produce a consistent change in the uterine flow. Increased bleeding is not uncommon but certainly not a constant finding. I have seen marked involvement of both ovaries by sarcoma with no change in the menstrual flow. Carcinoma, oftentimes secondarily involved by extension from the uterus, is accompanied by uterine hemorrhage.

Endometrial transplants, so ably described by Sampson, may be found on any of the pelvic structures or neighboring organs. Their effect on menstrual flow seems to result more frequently in pain than in actual increase of the flow.

#### ENDOCRINE

Endocrine disturbances as a cause of uterine hemorrhage have perhaps brought out more discussions than any other cause. Endocrinology is important and interesting both through the few known facts and the pseudo ideas that have been promulgated. In the past eight years I have had an endocrine clinic at the Washington University dispensary and have endeavored to study these cases from the standpoint of diagnosis and treatment. The key to endocrinology lies in the diagnosis plus the ability to administer the potent gland after the diagnosis has been made. The diagnosis oftentimes is difficult enough, but giving a glandular product made on the basis of sales rather than of quality is far more discouraging. At the present time we know more about the diagnosis than we do about what to expect from the inconsistent glandular products. The trusting medical profession has been imposed upon for years by the commercial manufacturer, who can recommend the same bottle of tablets for amenorrhea, sterility, dysmenorrhea, vomiting of pregnancy, menorrhagia or metrorrhagia, and feel assured that it will be used for all such ailments.

Getting back to the subject of the relationship of uterine hemorrhage to endocrinology, there are a few known endocrine disturbances that we can feel sure will cause an increase in the menstrual flow. Hyperthyroidism and hyperovarianism we know will cause increased flow and can be controlled by medication directed toward the endocrine disturbance. The menorrhagia in hyperthyroidism can only be controlled by treatment of the thyroid overactivity. Hyperovarianism can be controlled by medication counteracting the follicular stimulation. On the assumption that the corpus luteum exercises an inhibiting influence on

ovarian activity, I have used this form of treatment for hyperovarianism in a large number of cases. Sistomensin, a corpus luteum product, has given very gratifying results in a great many cases of this type. Failures with sistomensin, however, have been encountered in cases where the diagnosis seemed reasonably certain.

Hypoparathyroidism, hyperpituitarism of the anterior lobe and hypopituitarism of the posterior lobe, theoretically, should cause an increased amount in the uterine flow. The diagnosis is difficult, therefore the treatment is bound to be one of trial only. I have controlled uterine hemorrhage by parathyroid tablets and by para-thor-mone intramuscularly. Removal of pituitary tumors from the anterior lobe has been known to help control uterine hemorrhage. I have controlled uterine bleeding by the use of the posterior lobe product, pituitrin, yet that does not prove that a deficiency in the posterior lobe existed.

Hypothyroidism in my experience does not cause abnormal uterine bleeding. An occasional case will be found where menorrhagia exists, but in all probability it is due to a complicating disturbance. I have found scanty menstruation or amenorrhea uniformly present in hypothyroidism. Others, however, have observed the prevalence of menorrhagia.

Endocrinology will certainly play an important part in menstrual disturbances in the future. The progress cannot be great in this field, however, until the manufacture of such important glandular products is controlled through medical research.

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#### DISCUSSION

DR. W. C. GAYLER, St. Louis: Dr. Schwarz called attention to the fact that you cannot understand the question of puerperal sepsis unless you visualize the situation as it existed before the time of Semmelweis. You might develop a technic and treat puerperal sepsis but you cannot enter into the true spirit of the thing. The death rate among women who were examined by medical students in the Allgemeine Krankenhaus during labor was so high that the general public became aware of the fact that all was not well. The patients who were fortunate enough to be examined only by the women students of midwifery (who did no dissections) enjoyed a much better chance of recovery.

This difference in mortality rates seems to have given Semmelweis the idea that filth on the hands of the medical students had something to do with puerperal infection. The infection came from the teacher and students who went from the dissecting room to the delivery room, rarely washing their hands before making the examinations. The patients in the clinic in which Semmelweis was an assistant were mostly prostitutes of the lowest type,



and nobody seemed to care very much what became of them. But *they* cared what became of themselves, and it soon became common knowledge that they would do better if they would be delivered elsewhere, so many of them would have their babies in some alley, and after delivery they would pick up the baby and carry it into the hospital. Those who did not die of hemorrhage due to this type of delivery had a better mortality rate and less puerperal sepsis than those who had been examined by the medical students.

It seems to be very important that we make a diagnosis and find out whether the infection is in the uterus. I have not been able to make such an accurate diagnosis. Dr. Schwarz says if the trouble is in the uterus we may use certain manipulation but he does not speak of our old friend, fluid extract of ergot. I have a lot of confidence in ergot. It is a valuable drug in the beginning of puerperal fever, say in the first five days following delivery. I am convinced that many cases of puerperal fever have been aborted by large doses of ergot during this period.

DR. J. T. HORNBACK, Nevada: I was very much interested in the doctor's discussion of sepsis. Dr. Hanna said the family had decreased 300 per cent in a certain time, but I did not get the length of time. I would like to have him tell that again.

Speaking of uterine hemorrhage, I am very much surprised that they do not use the roentgen ray in controlling hemorrhage of the uterus. In my hands it is practically a specific.

DR. A. H. MARSHALL, Charleston: The midwives get along better than we do. In my town we have twenty-five midwives, and not one of them registered. They wait on these cases and if they get an infection they call a physician. That is where we get most of our deaths. I think the State Board of Health should see that these midwives stop practicing unless they have a license. The reason they do not do so is I think that the landowners pay the midwives only \$5.00 but have to pay higher if they want a good operator.

DR. T. R. AYARS, St. Louis: I want to ask Dr. Schwarz what is his procedure in incomplete abortion?

I also want to ask Dr. Kyger in regard to the sedimentation test. Evidently this test will show other infections. Were there any infections in these cases?

DR. W. B. SPALDING, Plattsburg: I would like to ask Dr. Hanna what is the average time of putting the baby to the breast? I understood there was some association between that and the progress of the puerperium.

DR. M. A. HANNA, in closing: The time elapsing between the birth of the baby and placing it to the breast ordinarily is from six to twelve hours. The breast is cleansed and afterwards treated as a surgical wound. The baby nurses every four hours thereafter, for twelve to fifteen minutes. I do not approve the teaching of some pediatricians, that the baby should be urged to nurse over long periods of time with the idea of stimulating lactation. I appreciate the fact that a vigorously nursing baby is an important element in aiding involution and perhaps lactation, but a baby kept at the breast for from twenty to thirty minutes traumatizes the nipple, invites the formation of a blister or fissure, and probably a later mastitis.

Dr. Hornback asked about the length of time during which the American family has decreased three hundred per cent. That involves statistics

which are not accurate. I have only the authority of accepted writers for the statement that it has decreased three hundred per cent in the last generation. I am further convinced that the average American family has decreased materially because it seems to me that almost as many women approach the doctor to have a pregnancy terminated as to conduct the pregnancy to delivery. If the city bred woman, even in the middle classes—of course the wealthy woman for many years has determined how large a family she shall have—consents to pregnancy more than twice it is always under protest.

Dr. Plass states that chemical antiseptics are of no value during delivery or postpartum. I am not in sympathy with this finding and generously use a combination of mercurochrome, alcohol and acetone. If soap and water is an efficient cleanser, why do general surgeons always use a chemical antiseptic before operation? In my opinion it has not been proved that iodine, picric acid and mercurochrome do not inhibit the growth of bacteria more effectually than scrubbing.

Dr. Schwarz gave a most intelligent treatment of the subject of puerperal infection. My experience with puerperal infection has been limited to hospital practice. In the General Hospital at Kansas City we have a great many septic abortions and some puerperal infections, which latter cases have usually had a certain amount of manipulation outside the hospital where an unsuccessful attempt had been made to deliver the baby. Those cases are almost invariably infected. The treatment is always conservative, depending largely upon blood transfusions and perhaps the use of the intramuscular injection of the nonspecific proteids.

DR. H. S. CROSSEN, in closing: Just one point. I have been asked as to the uterine discharge when the vagina is closed. In the Le Fort operation a small canal is left at each side of the vagina through which any discharge may escape.

DR. FRED B. KYGER, in closing: The doctor asked in regard to the sedimentation rate in relation to infection. I tried to bring that out in this manner—any condition influencing the sedimentation rate is principally inflammatory or it is pregnancy after the twelfth to the sixteenth week. The rate in acute adnexal inflammations would be around 25 to 35 minutes. In the normal woman it would be from 120 minutes up; so there is a marked difference.

As regards differentiation of the type of infection, I do not think that is as important as the activity of the infection. There is a marked difference between an active infection and one which has subsided.

DR. CHARLES D. O'KEEFE, in closing: The treatment of uterine hemorrhage by roentgen ray is universally accepted. However, I feel that the diagnosis is of great importance in these cases, so much so that the roentgen ray should never be used until the diagnosis is made.

I mentioned radium instead of roentgen ray. We use both, but it has been the experience of gynecologists especially, that the dosage of radium is better controlled in certain uterine conditions than the roentgen ray. I tried to make it clear that the dosage is very important when treating uterine conditions, especially in young women. I do not want to use roentgen ray or radium universally on bleeding cases because permanent injury may be produced upon the ovaries. This of course applies to young women.

## SYMPOSIUM ON ABDOMINAL SURGERY

### TRAUMATIC LESIONS OF THE ABDOMEN\*

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The successful treatment of traumatic lesions of the abdomen demands a somewhat more radical viewpoint than the handling of ordinary lesions. The wide range of disastrous injuries to the abdominal organs, often with little or no external evidence, and the rapidly fatal results which follow call for skillful diagnoses and prompt surgical procedures.

Two kinds of abdominal wounds must be considered, viz., penetrating wounds and contusions. In penetrating wounds there are definite external signs to direct us to the possible location of the injury. This is especially true of stab wounds but is not so dependable in gunshot wounds. There is no way of determining where a bullet will go or the damage it will inflict after it enters the body. All of us can recall some marvelous and almost unbelievable pranks played by a bullet in the abdomen. A man has been shot in the abdomen and the bullet has passed directly through him without injuring an intestine. On the other hand, a single bullet has been known to cause as many as a dozen or more perforations in passing through the abdomen. Again, a bullet may enter the abdomen, strike a bone and be deflected twice across the cavity causing multiple perforations of the intestines and bladder.

Of the penetrating wounds, it is not essential that we differentiate between wounds which penetrate the abdominal wall only from those which perforate the viscera. It is impossible to determine without exploration just how far the bullet or instrument has penetrated. The immediate symptoms are frequently very mild or even entirely absent. Waiting for symptoms to develop in uncertain cases is almost sure to deprive the patient of his chance of recovery. Therefore, the only safe procedure is to explore immediately every wound which penetrates the abdominal wall.

Contusions, crushing, folding or blunt injuries to the abdomen, present an even more difficult problem. We have first to consider whether the violence has been localized over one part or generalized over the whole abdomen. If there are external signs of injury we may have some idea of what to expect inside the abdomen. But a great many serious injuries show absolutely no external signs.

The history of the accident is therefore of great importance. Here again the manner of injury is often deceptive. A history of having been struck or of having fallen upon a hard blunt object, at once puts us on guard for injury to the viscera. But it must not be forgotten that a patient falling from a height and alighting flat on the abdomen upon a smooth surface may sustain a rupture of the liver or spleen with absolutely no external evidence. One such case of ruptured spleen which it has been my misfortune to encounter, was that of a little girl of eight years who fell from a height of ten feet and alighted flat on her abdomen on a smooth floor. The stomach or bladder may be ruptured in a similar manner if they are distended at the time of accident.

These blunt injuries must be considered in two groups, (1) those involving the solid or parenchymatous organs, and (2) those involving the hollow viscera. Although the liver, spleen, kidney and pancreas are fairly well protected from direct injury, they are frequently ruptured by generalized injury to the abdomen, or by a fall from a height and alighting on the buttocks, or by a crushing injury.

The liver is by far the solid organ most frequently involved, either by rupture of the capsule or of both the capsule and the parenchyma. In addition to the profuse hemorrhage the shock in these cases places this injury first in the list of such fatalities.

The rupture of the spleen is second in frequency and while the hemorrhage may be quite as great as in rupture of the liver the shock is much less. It requires a pretty severe general injury to rupture a normal spleen, but it is often ruptured by direct injury. It may be perforated by the fractured ends of the ribs. On the other hand, only a slight violence may be required when the spleen has been enlarged and rendered more friable by disease such as, malaria, typhoid or leukemia.

Rupture of the kidney is fairly frequent. It is not usually so quickly fatal and is more easily diagnosed except perhaps in cases where the ureter is severed or closed off. Here, again, we may have a rupture of the capsule only or a complete rupture through the parenchyma.

Rupture of the pancreas is usually caused by some violence which crushes the pancreas against the vertebrae. The inaccessibility of its position and the friable, vascular structure of the organ together with the fact that the irritating pancreatic secretion is liberated into the abdomen make the rate of mortality very high.

The mesentery has been lacerated either by a fall from a height and alighting on the buttocks or by a crushing injury directly to the abdomen. The injury may occur to the mesen-

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tery alone or in conjunction with injury to other viscera.

Fatalities in cases of injury to the parenchymatous viscera are due first to hemorrhage, second to shock, and lastly to peritoneal infection.

In cases of injury to the hollow viscera we have a different picture. Here we have more delicate, less protected organs that are more susceptible to injury by less violence, with less hemorrhage, only moderate shock and more liability to infection. This is partly compensated by their free mobility and their liability to injury depending somewhat upon the degree of distension they are in at the time of the accident. The injuries are usually due to crushing of the viscera against the firm posterior wall or vertebrae, to tearing by force applied indirectly, or to bursting of the organ when distended by the application of sudden violent pressure. Here the fatalities are due first to peritoneal infection, second to shock and less frequently to hemorrhage.

With the rupture of a hollow viscus there is an eversion of the mucosa and a contraction of the muscular layer at the site, which lessens the immediate hemorrhage but allows a leakage of the contents which, depending upon its amount, consistence and location, produce a local or general peritonitis.

The prevailing symptoms of severe abdominal injury from contusion are those of shock and hemorrhage accompanied by severe pain, muscular rigidity and collapse. In injury to the liver or in the region of the solar plexus the picture of shock always predominates. After a short time the shock subsides and the picture of hemorrhage predominates. The severity of the shock and pain symptoms may vary, but the muscular rigidity of the abdominal wall is a constant and dependable symptom.

It is by no means always possible to differentiate between shock and hemorrhage. On the other hand, the disturbance immediately following the accident is often slight or deferred, which may lead to serious error. No matter how slight the initial symptoms may be every case should be watched just as carefully as we would watch a case of head injury for the development of symptoms. This period of observation should not be extended too long and I believe every uncertain case should be explored at once in such a manner as to produce the least possible additional shock to the patient. Of course, perhaps once in a while nothing will be found but no serious harm has been done. On the other hand, very serious results always follow if the exploration has been too long delayed.

All cases of serious intra-abdominal wounds must be considered grave. Those which are

not operated upon practically all die and the mortality rate of those which are operated upon is directly in proportion to the lapse of time between the injury and the operation.

I have intentionally omitted from this discussion the so-called "traumatic hernia" and "traumatic appendicitis" because they are so rare if in fact they ever do occur. It is safe to say that inguinal hernia is never directly due to trauma and direct hernia only when accompanied by direct laceration of the abdominal wall at that site.

A few cases of what appeared to be appendicitis due to trauma have been reported but in every one that I have been able to trace there has been evidence of preexisting disease of the appendix.

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## SOME UNUSUAL ABDOMINAL CONDITIONS\*

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As part of a symposium on abdominal surgery, I have felt that it might be appropriate and possibly of interest to mention a few cases which offered diagnostic problems that were finally cleared up only at operation. Each case offers a considerable problem in itself so that it will be necessary in the limited time available to present them briefly. They have nothing in common except that they were all in children, in whom most surgical conditions are acute and offer fewer diagnostic difficulties than one finds in adults.

### REPORT OF CASE

The first patient was a boy, aged  $3\frac{1}{2}$  years. He was first under observation at the age of nine months, when he was taken to a hospital because of an attack of vomiting which lasted about three days and during which time he was stuporous and had some fever. No adequate record of this illness is available but it was assumed to be an attack of acidosis. He apparently made a complete recovery except that he became a difficult problem in feeding and had frequent gastro-intestinal upsets for which he had been taken to numerous physicians without obtaining relief. His development, nevertheless, had progressed quite normally and he had escaped the usual exanthemata.

Four months previous to his present admission he came under my care because of a large scrotal hernia which had been present for a few weeks and was getting larger. The hernia was reducible and the sac obviously contained bowel. There were no abdominal findings of note at this time. The hernia was repaired and proved to be congenital in type. On opening the sac, there was a gush of blood-stained fluid which unquestionably came from the peritoneal cavity. There was no obvious injury to the herniated bowel, which was easily reduced after

\* Read in the Symposium on Abdominal Surgery at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

pulling down a considerable portion for inspection, and we were at a loss to explain the presence of the bloody fluid. It was apparently not an hematocoele of the cord or the tunica vaginalis. The hernia was repaired in the usual way and he made an uneventful recovery. He was brought back a month later for observation. The old gastro-intestinal symptoms had persisted, his appetite was poor and his father thought he had fever at intervals. The abdomen was again negative on inspection and palpation.

He was admitted to the hospital three months later, after his parents had noticed that his abdomen had begun to swell. For two weeks previously he had complained of abdominal pain, especially after eating. He was listless, did not care to play as usual and vomited at intervals. There had been no diarrhea or constipation. He did not appear acutely ill. His skin was sallow but his general nutrition was good. The abdomen presented the only abnormal findings. It was definitely distended but soft and there were no palpable masses and no tenderness. One could demonstrate a fluid wave and there was dullness in the flanks. The liver edge was palpable, the spleen was not. There was no edema of the extremities. His temperature was 100, pulse 110. The urine was negative. The blood examination showed 4,100,000 reds, 70 per cent hemoglobin and 9000 leukocytes. The differential count was normal. Blood chemistry showed nothing abnormal. Abdominal paracentesis was done and bloody fluid obtained. This fluid contained 340,000 red cells per cu. mm. and 4200 leukocytes. Smears showed 58 per cent of polymorphonuclears and 30 per cent of lymphocytes. Cultures of the fluid were sterile and no bacteria were found. A gastro-intestinal roentgen ray examination failed to reveal any abnormal condition in the alimentary tract except that the appendix was not visualized.

He was kept under observation for two weeks. The abdomen became somewhat smaller and the subjective symptoms largely disappeared. He had no fever of consequence, but in view of the long-standing history and the presence of bloody ascites, which we knew had been present for at least four months, the general consensus of opinion among the numerous clinicians and surgeons who had seen him was that an exploration was indicated. The diagnosis most favored was tuberculous peritonitis. Others considered the possibility of hemorrhage from an hemangioma, possibly of the liver.

At operation, the parietal peritoneum was found to be thickened. There was only a small amount of free bloody fluid in the peritoneal cavity. The upper abdominal organs all appeared normal on inspection. The omentum, however, was thickened and its free border was adherent to an inflammatory mass, involving several loops of small bowel. On separating these tissues, a smooth tumor mass about the size of an olive, was isolated. It looked very much like a Meckel's diverticulum but it proved to be a solid tumor, subserous, and arose from the mesenteric border of a loop of ileum. There was some inflammatory reaction about its base as evidenced by the adherent bowel and omentum, but it was easily dissected free without injury to the lumen of the gut. There were no other masses found and there was no involvement of the neighboring glands. The appendix was buried in the wall of the cecum due in all probability to secondary inflammatory involvement. It was removed. Frozen sections of the tumor mass were made at once and, to our great surprise, suggested pancreatic tissue. The pancreas itself was again examined more carefully but seemed quite normal. There was no gross

evidence of fat necrosis. The abdomen was closed without drainage.

Subsequent study of the tumor showed that it was pancreatic tissue. The inflammatory reaction about it suggested the possibility of a low-grade pancreatitis of long standing, which might explain the presence of the bloody ascites and the clinical signs and symptoms that had been present over this long period of time. At any rate, he had no further trouble and has remained well for more than a year and a half.

A discussion of the subject of aberrant pancreatic tissue is obviously impossible in the time available, but it is interesting to note that the condition is relatively rare. It was formerly regarded as an anatomical curiosity but in the past two decades a considerable number of observations have been made by surgeons and a few years ago W. M. Simson, at Baltimore, collected and analyzed 150 cases from the literature, adding one of his own. The origin of aberrant pancreatic tissue is best explained on the basis of misplaced embryological rests which are carried along by the longitudinal growth of the intestine. They are almost invariably found in the gastro-intestinal tract and most frequently in the wall of the stomach, duodenum or jejunum, less commonly in the ileum. One has been reported as occurring in the mesenteric fat, one in the omentum, three in the body of the spleen, but none have been found in the large bowel. They are usually small, seldom exceeding four cm. in diameter and resemble normal pancreas, histologically. Whether they possess any functional activity is unsettled, but they are apparently subject to the same pathological changes as the pancreas though not prone to malignant degeneration. Obviously, the diagnosis is only made at operation and in the majority of cases there has been clinical evidence of pyloric obstruction in which the roentgenological findings suggested neoplastic growths. In other cases the history has been typical of gastric ulcer. In some, the tumors have resulted in intussusception or a stenosis of the intestine.

About a year ago, a sturdy, well developed boy, eleven years of age, living on a farm in Illinois, was kicked in the upper left abdomen by a mule. The accident occurred shortly after he had eaten a hearty dinner. No immediate attention was paid to the accident, which was not considered serious, but within a short time the boy became nauseated and vomited. He broke out in a cold sweat, became pale and complained of severe abdominal pain. He was seen by a physician, who observed him for a few hours and noted that the symptoms were not relieved by local measures but were getting progressively worse. To his great credit he insisted that the boy be brought to the hospital where he arrived about eight hours after the injury, having made the trip of some forty miles in an automobile over very rough roads. He was able to walk in and aside from a distinct pallor did not appear acutely ill. He had vomited six times since the in-



jury but never any blood. On leaving home he had been given a hypodermic of morphine.

His past history was irrelevant. He had had the usual exanthemata, but had always been a very husky boy. The abdomen presented the only abnormal findings. It was not distended. There was slight ecchymosis at the site of injury but no break in the skin. The entire abdomen was rigid and there was generalized tenderness, most marked in the upper left quadrant. His general appearance indicated a moderate degree of shock. The pulse was rapid, temperature 101.5, respiration 26 and blood pressure 102/80. The white count was 18,000 on admission and within an hour had gone up to 23,000. The urine was clear and free from blood. There was no evidence of blood in the rectum. He presented a fairly typical picture of an acute surgical condition within the abdomen and was prepared for operation as soon as possible.

The abdomen was opened through a left paramedian incision. There was a considerable amount of free bloody fluid in the peritoneal cavity. None of the solid viscera seemed to be injured. The large intestine was intact. A systematic exploration of the small bowel was begun at the ileocecal junction and nothing found until, at a point about twelve inches below the ligament of Treitz, the jejunum was found completely severed. The mesentery was intact. There was moderate bleeding from the torn bowel and a considerable leakage of intestinal content and some undigested food. This was wiped out as much as possible, the ends of the bowel were trimmed off and an end to end anastomosis was made. There being no other demonstrable injury, drainage was instituted and the abdomen closed. He stood the procedure well but in view of the extensive soiling a guarded prognosis was offered, although we realized that the site of the lesion, high in the intestinal tract, made the situation more hopeful than one lower down in the ileum. Cultures from the free fluid showed no growth. For a week after the operation he made very satisfactory progress. There was very little drainage, the abdomen remained soft and he had begun to take some food. Then his temperature, which had been practically normal, became irregular, the abdomen was distended and there was occasional vomiting. Enemata were effectual and the symptoms did not suggest an obstruction. After a few days he developed a localized area of tenderness and a definite mass in the lower left abdomen. This proved to be a secondary abscess, which was drained through a lateral incision and was found to be walled off from the general peritoneal cavity. It contained a large amount of foul-smelling pus, probably due to a colon infection and more bloody fluid similar to that which was present originally. After this procedure, he had no further trouble and made a rapid and satisfactory recovery. Both wounds healed promptly and he left the hospital four weeks after admission. He has remained well to the present time.

Traumatic lesions of the intestines due to nonpenetrating blunt force are relatively uncommon. In this case the injury, in all probability, was due to a compression of the bowel between the anterior abdominal wall and the spine. It has also been suggested that compression of the abdominal wall may tear the underlying intestine near some fixed portion, such as the duodenojejunal or the ileocecal junctions, or a blow might conceivably cause a

bursting of a distended loop. Very recently, Rexwald Brown reported an almost identical lesion in a young woman who was injured in an automobile accident and who recovered after operation. In reviewing the literature, he had been able to find but one similar case recorded. In this instance the patient died of peritonitis. I have found one other case reported by R. Aird, of Hankow, China. His patient had suffered a crushing injury and recovered after an end to end anastomosis of the severed jejunum. It is obvious that the most important factor in the handling of such an injury is the necessity of early intervention. This responsibility rests primarily upon the physician who first observes the case. The findings, as in our patient, may not seem alarming in the beginning, but a delay of only a few hours may spell disaster and a failure to recognize the condition must necessarily be fatal. This boy certainly owes his life to the excellent judgment of his family physician.

The following two cases are presented as problems in the differential diagnosis between abdominal and pelvic conditions. In adults, such instances are most common but they are not so often met in children. That they must be kept in mind however is well illustrated by these cases.

A girl, eleven years of age, was admitted to the hospital because of recurring attacks of abdominal pain. Her trouble began a year ago and was characterized by pain in the lower left abdomen, accompanied each time by nausea and vomiting. The pain frequently radiated down the left thigh, lasted from three to twelve hours and was usually relieved by enemata and hot baths. A kidney condition was suspected but the urine was always negative, with one exception when it contained pus and a tentative diagnosis of pyelitis was made. There had been no apparent fever during these attacks. There was nothing else of significance in the past history. The present attack began two days before admission. As usual, it subsided in a few hours and she went to school the following day. The next morning, however, she was awakened by another attack. She vomited several times and the usual remedies failed to give relief so she was sent to the hospital with a diagnosis of possible ureteral calculus and pyelitis.

She had a temperature of 101, a white count of 10,200 and her urine contained some epithelial cells and leukocytes but no reds. The pain persisted, also the nausea and she vomited at intervals. On the following day the white count had gone up to 19,600 and the temperature ranged between 100 and 101. The abdominal findings were indefinite. The abdomen was flat, the muscles rather tense and the tenderness most marked in the midline below the umbilicus. Deep palpation was resisted, especially on the right side. Rectal examination while painful gave no satisfactory information. On the second day after admission the symptoms suddenly increased in severity and I saw her for the first time in consultation. Her temperature was 102, the white count 23,800. She complained of severe general abdominal pain and there was exquisite tenderness localized in the lower right quadrant, with marked muscle spasm. These findings, in a girl of eleven,

in spite of the rather unusual history, seemed to justify a diagnosis of acute appendicitis and immediate operation was recommended.

The abdomen was opened through a right paramedian incision. The peritoneum was injected and some free bloody fluid welled up from the pelvis. The cecum was bound down by adhesions but the appendix was readily found. It was injected, thickened and quite adherent, but obviously not the cause of the acute trouble. It was removed in the usual way. Examination of the pelvis revealed a dark blue mass in the left adnexal region about the size of a large egg. It proved to be an ovarian cyst the pedicle of which together with the fallopian tube had become doubly twisted causing a beginning necrosis. After untwisting the pedicle it was obvious that the circulatory damage was irreparable and the mass was resected. The uterus was normal, also the adnexae on the right side. The abdomen was closed without drainage.

She made an uninterrupted recovery and was discharged from the hospital on the tenth postoperative day. Her symptoms were entirely relieved and she has remained well during the five years which have elapsed since the operation. Her development has been normal.

Aside from the fact that this was an error in diagnosis no further comment is necessary. It seems that the condition is common enough to warrant its consideration in all atypical cases.

The last patient, a girl of five, was brought to the hospital because of abdominal pain, vomiting and fever, which had begun a week before and was getting progressively worse.

She had always been a very healthy, active child and her development had been entirely normal. Her trouble began with cramping abdominal pain associated with fever, but at first no vomiting. At about the same time it was noted that she had a vaginal discharge and complained bitterly of pain on urination. There were three other small girls in the family but none of them had had a similar infection. She was kept in bed but the symptoms persisted and increased in severity. On the second day her temperature was up to 103. The pediatrician in charge sought a gynecological consultation to determine the cause and significance of the vaginitis. Smears were made after a speculum examination and there was some discussion as to the type of organism found. It was finally decided that it was a simple pyogenic infection and not gonorrheal. The pain persisted and was more or less localized in the midline below the umbilicus. She refused nourishment and on the fourth day began to vomit at intervals. She had an afternoon temperature of 104. The vaginal condition was treated locally and daily smears failed to show any typical intracellular diplococci. On the sixth day of her illness she was brought to the hospital and came under my observation for the first time. She looked toxic but the general appearance was not that of a child with general peritonitis. The abdomen was not distended; it was relatively soft except for some resistance in the suprapubic region and tenderness throughout the lower half. There was no mass to be felt and the rectal examination was negative. A catheterized specimen of urine showed nothing abnormal. Her temperature was 103, the white count 20,600, with 73 per cent of polymorphonuclears. It was the opinion of the gynecologist that the abdominal condition was not secondary to the local infection but that it was due to some primary intra-abdominal condition. The severity of the symptoms, which were becoming progressively worse, and the

fact that appendicitis could not be definitely ruled out seemed to make a clear indication for exploration. On opening the abdominal cavity there was no evidence of a general peritonitis. A very long, coiled appendix was readily located. It was definitely injected, thickened and distended, showing unmistakable evidence of acute inflammation but it did not seem sufficiently involved to be the sole cause of her severe symptoms. It was removed in the usual way. On examination of the pelvis we were very much surprised to find both tubes involved in an acute inflammatory process. They were deeply injected with scattered subserous hemorrhages and the right one was markedly swollen. They were not adherent however and there was no exudate about them. They were soft and pliable and one got the impression that the inflammation was confined chiefly to the peritoneal surface. The uterus seemed normal. The abdomen was closed without drainage. Her postoperative course, as might have been anticipated, was rather stormy but she eventually made a very satisfactory recovery, leaving the hospital on the eleventh day. After a few months at the sea shore she was as well as ever and has remained so. It is now a year since her illness. The vaginitis finally cleared up also under the usual treatment.

I still do not know whether the tubal infection in this case was the result of an ascending infection, whether it was secondary to the appendiceal inflammation or whether the whole process was part of a general infection such as we sometimes see and are unable to explain satisfactorily. In an adult, we know such infections travel through the genital tract but gynecologists, I believe, are loath to admit such a sequence of events in very young children in whom the genital tract is still undeveloped. It must be rare, in view of the large numbers of children who are treated for vaginitis in our clinics without developing such complications, but I have knowledge of one case operated on by a colleague in which there was a bilateral pyosalpinx. While the appendix on subsequent examination showed definite inflammatory changes, one would expect more destruction after an illness of a week's duration and with such acute symptoms, had it been the primary source of the trouble. In any event, I know of no other way, than by exploration, to handle such a situation in a child, safely. The burden of proof always rests upon the one who ignores the appendix in any acute condition within the abdomen of a child.

816 Beaumont Medical Building.

## EARLY PHASES OF GALLBLADDER DISEASE\*

ROBERT D. IRLAND, M.D.

KANSAS CITY, MO.

Not much is written to tell us that the clinical picture which we recognize as chronic gallbladder disease, or chronic appendix dis-

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ease, really is a picture of late gallbladder disease or late appendix disease. These conditions exist for a long time before the symptom-complex develops to a degree that makes a diagnosis possible. When the truth of this statement is recognized, the problem of how the situation may be met in practice becomes important and means must be employed to prove that chronic disease of these organs exists before the typical symptom-group becomes manifest.

For a number of years I have been impressed with the fact that patients with chronic appendix disease characterized by the presence of distorting developmental bands, almost invariably give a history of some kind of gastrointestinal symptoms dating back as far into childhood as the patient can remember. It was with especial interest, therefore, that I took the opportunity of analyzing the symptoms given by a group of five hundred patients who had been subjected to a routine roentgen ray visualization of the gallbladder and reported by the roentgenologist as having diseased gallbladders. The result of that analysis forms the excuse for this paper.

Many of these patients had never complained of any symptom directing attention to the gastro-intestinal tract. They came seeking the cause of their headaches, muscle pains, joint pains, backaches, general weakness, lack of endurance, or almost any other symptom except "stomach trouble."

It was rather amazing to find those symptoms and signs that we have come to consider essential to a diagnosis of gallbladder disease—nausea, vomiting, food disagreement, belching, epigastric pain, tenderness radiating into the right hypochondrium, right back and scapular region, achlorhydria, and so on—occurred in this series with marked inconstancy.

It was interesting to note that sixty per cent of the patients were women; that seventy-five per cent of these women had been pregnant at least once and that sixty-two per cent of them had been pregnant two to ten times.

The incidence of typhoid fever and malaria in these histories is only twenty per cent, and in the same number of cases the association with appendix disease was demonstrable.

It was a surprise to find that soda and the taking of food into the stomach, which are widely known to be efficient in relieving epigastric distress in ulcer but are equally well known as failing to relieve epigastric distress in gallbladder disease, gave relief in twenty per cent of these cases.

A lack of appetite, nausea, vomiting, tenderness in the epigastrium and right hypochondrium, pain in the right back and scapula and

at night, form the classical symptom-group in gallbladder disease; yet they occurred respectively in only thirty-five per cent, twenty-nine per cent, thirty per cent, twenty per cent, fifteen per cent, and less than ten per cent of this series. More than fifty per cent had constipation, less than ten per cent had diarrhea, and fifteen per cent had jaundice and clay colored stools.

Tenderness in the gallbladder area occurred in sixty per cent, and in the epigastrium in fifteen per cent.

Achlorhydria occurred in fifteen per cent, hyperacidity in nine per cent, spastic colon in fifty per cent and a definite colitis was demonstrable in four per cent.

Pregnancy, constipation, spastic colon, and tenderness in the gallbladder area are the only diagnostic factors that occur in at least half of the cases.

Analysis of Histories in 498 Cases Diagnosed Gallbladder Disease by Roentgen Ray Evidence		
Male,	40%	Vomiting: 29%
Female,	60%	Present
Previous operation on gallbladder,	4%	Absent 50%
Association with appendix disease,	20%	Pain: 27%
Previous Illness:		Epigastrium 17%
Dysentery,	0%	Right hypochondrium
Typhoid fever,	20%	Right back and scapula 12%
Malaria,	20%	Night 7%
Pregnancy,	75%	Food disagreement: 25%
Multipara (2 to 10)	62%	Present
Jaundice,	15%	Absent 14%
Clay colored stools,	15%	Relief secured by soda: 20%
Constipation,	56%	Yes
Diarrhea,	8%	No 7%
Achlorhydria,	15%	Relief secured by food: 10%
Hyperacidity,	9%	Yes
Appetite:		No 20%
Good	32%	Tenderness in gallbladder region, 60%
Fair	14%	Tenderness in epigastrium, 15%
Poor	16%	Spastic colon, 48%
Nausea:		Colitis, 4%
Present	35%	
Absent	35%	

Five hundred cases are not a sufficiently large number from which to draw fixed conclusions but one may be permitted to draw certain inferences from such an analysis as we have made, if it can be assumed that the conclusion of the roentgenologist is correct. Unfortunately, treatment of these cases has not been undertaken by us, the patients having come only for diagnosis. However, in most treatment clinics, diagnosis by gallbladder visualization has been supported by gross and histologic evidence of disease in a high percentage of instances. In Graham's clinic, where the method originated, it is asserted to be 97.25 per cent correct. So I feel that we can accept the roentgen ray evidence with a reasonable assurance that it is correct if the technic has been carried out by an adequately skillful and experienced roentgenologist.

The first inference to be made is that we cannot always recognize the early stages of gallbladder disease by clinical signs and symptoms

alone. If we could do so perhaps medical treatment might prevent its becoming a surgical lesion.

The second and third inferences are that since so many of these patients complain of symptoms that in no way implicate the digestive tract, are we not compelled to believe that the gallbladder is important as a silent focus of infection, and that we should more often think of it and investigate it as a possible cause of the trouble in cases that are obscure or have resisted treatment?

713 Medical Arts Building.

### COSTLY DELAYS IN ABDOMINAL CONDITIONS\*

WILBUR SMITH, M.D.

SPRINGFIELD, MO.

In checking up the hospital cases at the close of each year's work, I became more and more convinced that there is room for considerable improvement in the handling of cases of acute abdominal conditions. The following records from April 1, 1929, to April 1, 1930, were taken from a 75-bed hospital in my city:

Table 1. *Operations Performed*

Operation	No. of Cases	Deaths
Appendectomy (early) .....	199	3
Chronic pelvic conditions, including fibroids, cysts, etc., and removal of appendix as a secondary condition .....	217	7
Tubal pregnancy .....	18	3
Tubal abscess, diagnosed preoperatively.....	48	3
Stomach and duodenal perforation and ulcers .....	14	7
Abdominal tumors:		
Fibroids .....	54	6
Large cysts .....	23	1
Infected gallbladder, with and without stones .....	58	6
Tonsils removed .....	285	1*
Prostatectomy .....	22	4
Cancer of vagina, perineal and cervical lac-		
erations, etc. ....	159	1
Empyema with rib resection.....	22	2
Fracture of skull (delayed).....	16	12
Appendical abscess with general peritonitis..	91	18
Fracture of limbs (delayed and infected)....	18	7
Cases in dying condition too far advanced for any operation:		
Kidney conditions .....	5	
For cesarean section .....	3	
Obscure abdominal conditions with advanced general peritonitis .....	54	
Total .....	1306	81

\* (Pneumonia.)

What is the total throughout the country if our 75-bed hospital has such a percentage?

Inasmuch as early operation in such conditions is the watchword of present-day practice I feel that some inquiry and comment as to the reason for delay in operating and the cost of delay are in order. How much

of this delay can be laid to the profession and to what extent the patient and his family are responsible are purely speculative questions. Our records show an increase in the number of delayed cases brought into the hospital in spite of an increased number of hospitals, modern methods of diagnosis, good roads and improved means of rapid and easy transportation.

In attempting to find the cause of this state of affairs I wish to point out what seem to me to be contributing factors.

First is ignorance and delay on the part of the patient or his parents or those interested in him, to call the physician in time. This ignorance is due to several conditions such as the scarcity of rural doctors, the prevailing hard times, the increasing cost of hospitalization and the surgeon's fee.

Second is the improper use of purgatives. So many times purgatives are taken in acute abdominal conditions before the doctor is called and sometimes given by the physician thus causing a delay in arriving at a proper diagnosis.

Third is the use of morphine before the diagnosis is made or the patient is ready to start for the hospital. Morphine obscures the symptoms and instills in the patient a false sense of improvement. If a sedative seems necessary it is a good plan to give a sterile solution hypodermically or a few placebo tablets and suggest that if the patient isn't relieved in a short time the case demands more than hypodermics.

Fourth are delays caused by waiting for a differential diagnosis when the main diagnosis should be whether or not it is a surgical case. The main point is that every moment is costly to the patient's life.

Fifth is the fear of the knife. This is a great factor in keeping really desperate cases in the hands of cultists and nondescript healers. All of us know of cases that were readily amenable to surgery being handled by these nonmedical practitioners until death brings release from suffering.

Finally, I would like to impress upon you the importance of the early clinical symptoms and history of the case. These are as valuable as the roentgen ray and laboratory findings. Without in any sense detracting from the value of the roentgen ray and laboratory findings we know that the pictures and blood counts in delayed abdominal cases can so confuse one that we overlook the clinical symptoms and may hesitate in deciding whether it is a case of, say pyelitis or of ruptured appendix. In such cases I

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advocate an exploratory laparotomy and our results certainly justify such a course.

The educational campaign conducted through free clinics, state hospitals, state boards of health, state and county units, and free examinations of school children, are fine and bring untold good results. Still we are doing nothing to educate the general public about the grave dangers of neglecting early symptoms of acute abdominal conditions. Much good could be accomplished if we could arrange for talks over the radio wherever there are broadcasting stations, by educational columns in the newspapers of the counties as well as in the cities and by public meetings at the sessions of the State Association and county societies. These health talks could be handled through the State Association and no name be used. It would be just an honest effort on our part to reduce and remove this menace of costly delay in securing proper medical and surgical relief in acute abdominal conditions.

Smith Building.

#### DISCUSSION

DR. FRANCIS L. REDER, St. Louis: These are splendid subjects, excellently presented. They are of much import for every physician here and should not be allowed to pass undiscussed.

Take the first paper for instance—an admirable paper that could be discussed for hours. The whole discussion could be condensed into a single phrase: Do not take any chance with your patient when you know that there has been a belly injury, no matter how mild the clinical picture may present itself. We have in the City Hospital in St. Louis a rule that in every disabling trauma of the abdomen, be the clinical evidence distinct or befogged, the abdomen must be opened at once. There is very little danger in an exploratory operation provided it is skilfully performed.

In the interesting array of cases that Dr. Fisher has cited there was one case—it was a suspected appendix lesion. Here was a girl that presented the clinical picture of a diseased appendix. At operation the appendix was found normal, but the surgeon recognized in another organ a pathological condition that simulated the symptom picture of an appendix lesion—nothing unusual in pathology of the belly. The condition that so closely resembled the clinical picture of appendicitis was an ovarian cyst. In this case the supposed appendix trouble was responsible for the prompt operation, something to be thankful for, even if the appendix was not diseased.

DR. EDWARD H. SKINNER, Kansas City: I would like to mention Dr. Irland's paper, in which he describes 500 cases that have had gallbladder visualization; that seemed to be the basis of the paper. An absolutely negative gallbladder shadow, and absence of shadow in the gallbladder area following the administration of gallbladder dye, are considered most valuable findings. When the gallbladder is not functioning you have no shadow. But it is at the same time a most treacherous finding because there are so many things that interfere with absorption of the dye. The patient may not have swallowed the capsules or emulsion; the capsules may not have dissolved; he may not have followed directions in regard to meals—he may have eaten too hearty a sup-

per the night before or breakfast that morning. Under any of these circumstances the negative shadow would be worthless.

Another important thing in gallbladder visualization, especially in places that do not have busy roentgen ray laboratories, is that the gallbladder visualization may be disappointing for various reasons. The principal reason is because they do not have fresh capsules. Capsules which through age have become hard will not dissolve at all and therefore it is necessary to make the negative include the whole colon in order to discover this fact.

Those who do gallbladder work only at intervals I believe will be disappointed in this examination. Furthermore, in the examinations by the internist who has his own roentgen ray apparatus, or in the small hospitals where they have few of these cases, the technic is apt to be very poor. There is nothing that demands better radiographic technic than gallbladder examinations. Breathing during exposure can completely obliterate the shadow. Overexposure is disastrous. Some of these fine points are really essential points in gallbladder shadow work by means of the roentgen ray.

It is a very satisfactory examination in the hands of those who do a great deal of this work. The work that Dr. Irland reports was completed by Dr. Lockwood and is correctly done. He insists upon a very fine technic at all times and I feel his work is very reliable. But I would like to say for those who do this work infrequently that poor capsules or poor technic can give a greater percentage of error in this roentgen ray examination than in any other field I know of.

DR. C. D. HUMBERD, Barnard: It has become quite convenient for the surgeon to hang his diagnosis on the preoperative cathartic that the family physician supposedly gave the patient before operation. It is unjust yet it happens too often after the patient dies for the surgeon to say that the family doctor gave a cathartic, no matter what medicine had been administered. I do not believe there are many men here who would give a big dose of calomel or of castor oil to a case showing symptoms of an acute condition in the abdomen. There are many other things that can cause death following appendectomy besides a preliminary cathartic, and this one reason is overworked, I believe.

DR. ROBERT D. IRLAND, in closing: I am glad that Dr. Skinner had an opportunity to discuss the point of gallbladder visualization. It should be discussed by the roentgenologist as well as the surgeon. I want to state my conviction that the attitude of skepticism of many surgeons toward the value of roentgen ray examination is probably due to error of technic. As Dr. Skinner says, the cases in my series were examined by Dr. Lockwood, who is unusually particular about the precision of technic and management of these patients.

When gallbladder visualization, or rather the gallbladder's reaction to visualization, is more thoroughly understood the surgeon will probably get more help in determining whether a given gallbladder should be removed or drained. I do not believe the work has advanced sufficiently to be sure of that, but from some cases we have had I am led to hope it will develop such a service.

DR. WILBUR SMITH, in closing: The main point I wanted to make is that when patients have already had too many purgatives, sometimes the doctor will add to that mistake. I do not think a surgeon should take advantage of anything like that.

DR. EDWARD H. SKINNER, Kansas City: I would like to inject into the record at this time certain remarks upon roentgen ray work in urology. These remarks will be directed three ways: First, responsi-

bility in regard to roentgen ray work; second, the technic; third, the percentage of error.

First, there is such general distribution of roentgen ray apparatus that it behooves those who purchase apparatus to undertake the responsibility of doing good work. The cost to the patient is really the same, therefore physicians who purchase and use roentgen ray apparatus must also assume the responsibility of producing good roentgen ray exposures, satisfactory for interpretation, and acquire the ability to interpret them. This responsibility to the public in regard to roentgen ray examinations is serious enough for us to consider. If you assume the responsibility of conducting roentgen ray work without the aid of a competent radiologist, you must also assume the responsibility of returning a full measure of roentgen ray service to the public.

Second, those who use roentgen ray apparatus without having enough work to renew the proper developing solutions regularly must undertake this rather costly procedure if they expect to produce satisfactory negatives. Those who do very little roentgen ray work feel that they do not need to renew this solution. Developing solutions not only deteriorate from oxidation but also from age. Oxidation can occur through air just as well as through use in developing roentgen ray plates. If there is not sufficient work the solution not only loses its ability to develop the plate, but its ability to stain the plate increases with oxidation. It is generally assumed that all that is necessary is to place the roentgen ray plate underneath the patient, the tube on top, and shoot. There is far more to it than that. That is illustrated by the trouble to which Dr. Burford referred in regard to a patient holding a deep breath and thus producing an apparent kink of the ureter. It is a condition known for many years to radiologists. I remember Stover, of Denver, a veteran radiologist, read a paper at the American Roentgen Ray Society in 1914 entitled "When Is a Kink Not a Kink?" This is a condition which has been known but has not been appreciated through two decades.

Third, the percentage of error in roentgen ray work. A new textbook by Jolly entitled "Stones and Calculi of Renal Origin," published in 1929, is one of the best books on renal stones that we have had up to the present time. There are several cuts in it which show the degree of error in roentgen ray work. In one place he says that radiography gave negative results in eleven per cent of cases, according to Braasch and Moore in 1915. In another place, the percentage of failures in Germany was 1.4 per cent, by Schinz in 1926. Jolly says: "On the other hand, we have never seen a radiological failure in patients who have had several attacks of renal colic without passing stones." He continues a description of the percentage of error in roentgen ray stones as given by Holland, the Nestor of radiology in England, who says: "Proof of the rareness of roentgen error is that, first, in all my cases not once has one been removed by operation or found on operation in a case where there was a negative roentgen ray plate; second, in a large series of examinations and stones removed we have not had more than 1 per cent of uric acid stones."

#### DRINKER RESPIRATOR

Philip Drinker, Boston; Thomas J. Shaughnessy, New York, and Douglas P. Murphy, Philadelphia (Journal A. M. A., Oct. 25, 1930), have found by experience that the respirator is effective in cases

of acute anterior poliomyelitis, gas poisoning (carbon monoxide), alcoholic coma, drug poisoning (morphine, heroin, barbitol) and drowning. There was one postoperative respiratory failure and one failure in asphyxiation of the new-born. In the latter case the child was kept alive but died later of complications. There is a field for the device in the treatment of new-born babies in whom respiration is not initiated by the usual means. Contraindications for the use of the respirator are simply those of observing the patient's reaction to the respirator. If the patient is not suffering from respiratory difficulty or is not cyanosed, there is generally no point in using the respirator. If the patient does not respond to the treatment and does not spontaneously breathe in synchronism with the machine, the artificial respiration may actually interfere with his voluntary breathing and certainly does no good. Even in the case of conscious patients who are frightened and apprehensive but badly cyanosed, we have experienced no great difficulty in putting them into the respirator. A patient can be transferred from a bed or stretcher to the respirator very easily in less than one minute by inexperienced persons. In many instances morphine has been given to patients who are already in respiratory difficulty but are apprehensive of the machine and are restless. This treatment has proved effective, especially in poliomyelitis, but obviously it is to be used when the respirator is immediately available or when the patient has already been placed in it. In the treatment of infants who do not respond to the customary respiratory stimuli at birth, the respirator seems particularly applicable. In such instances the machine must be near at hand, preferably in the delivery room or a room adjoining. A sufficient number of patients have been treated to indicate that, for the new-born, the respirator has a very useful field.

#### THERAPEUTIC VALUE OF DIGITALIS IN PNEUMONIA

John Wyckoff, Eugene F. Du Bois and I. Ogden Woodruff, New York (Journal A. M. A., Oct. 25, 1930), report the results of their study of 742 patients; 338 received digitalis; 404 did not. There was no evidence that routine digitalis therapy in lobar pneumonia results in a lowered mortality; in fact, the mortality was a little higher in the digitalized group than in the nondigitalized group. In pneumonia patients with sinus rhythm the only consistent evidences of digitalis effect are electrocardiographic changes and mild toxic effects. About 95 per cent of patients have sinus rhythm throughout the course of lobar pneumonia. Clinical symptoms of digitalis toxicity are not a sufficient guide in digitalis therapy in lobar pneumonia to prevent increase in mortality when the drug is used. The amount of the drug given is a better guide. When given in dosage too small to show any effect, it causes no changes in mortality. When given in dosage comparable with the amount usually needed in the treatment of heart failure, it produces effect on the P-R interval and T wave of the electrocardiogram but causes little change in mortality. Digitalis may perhaps be life saving in an occasional patient with auricular fibrillation or auricular flutter. Auricular fibrillation and auricular flutter occur rarely, in less than 5 per cent of all cases. Patients developing this condition frequently recover without digitalis. It is concluded by the authors that the routine giving of digitalis to patients with lobar pneumonia is dangerous.



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FEBRUARY, 1931

## EDITORIALS

### WAS IT WISE?

Mr. Elmer H. Bartelsmeyer, executive secretary of the St. Louis Medical Society, gave a comprehensive report of his activities from the time that he assumed the duties of the office in February, 1930, to October, 1930, thus covering a period of eight months. The report was given at a general meeting of the society on October 21, 1930, and detailed an astonishing amount of service to the society as a whole, to groups of members, to individual members, to the State Medical Association, and to lay organizations whose activities touch the functions of the medical society at various angles.

The wisdom of adding this arm to the other activities of the society may be judged from the wide variety of avenues that Mr. Bartelsmeyer found open or which he blazed for helpful service. Much of the work he has done had been visualized by the society as necessary to its progress but with no one able to give all his time or even a large part of it to these problems they have remained unsolved or at best became the subject of resolutions that flared brilliantly for a day and then died from inanition.

From his investigation of the work performed by executive secretaries of other county societies in the country, Mr. Bartelsmeyer realized that the problems of the St. Louis Medical Society probably reflect fairly accurately the story that attaches to any organized medical society. The story of his work, though greatly abbreviated, follows:

There are approximately 143,000 physicians in the United States and about 32,000 other practitioners who care for the sick. Naturally, there are thousands of people who fail to obtain adequate medical service at the time when scientific medicine could do them the most good because they go to these irregular practitioners. Such a condition leads directly into medical economics which is today probably the most acute problem in medical practice calling for

solution. That it is not local in its application is shown by recent surveys in various cities, among them a study of free dispensaries by the Wayne County Medical Society, Detroit, and by the Allegheny County Medical Society at Pittsburgh, Pennsylvania; a survey of charity work performed by the members of the Milwaukee County Medical Society, Milwaukee; the effect of the New York workmen's compensation law on the medical profession of that state investigated by the Bronx County Medical Society; economic surveys by the Toledo Academy of Medicine of Ohio and the Kings County Medical Society of Seattle; a study of clinics by the Academy of Medicine of Cleveland; and the five-year study by the national committee on the cost of medical care.

The business corporation that would encroach on individual practice comes before the physician often and came before the St. Louis Medical Society in the form of a proposition by a company organized to furnish medical, surgical and roentgen ray service to policy holders for one-half the usual charge, the policy holder to pay the sum of 15 cents a week for this cheap medical service and in addition at his death receive "a swell \$300 funeral." The promoters evidently believed physicians would grab at the chance of having "5,000 families allotted to them," which was the bait dangled before them. No member of the society was inveigled into the scheme.

Various bills in the Congress at Washington required the attention of the society during the year, the "Porter Bill" establishing a bureau of narcotics in the Treasury Department under such rules as the commissioner might formulate being one of them. Another bill, transferring the prohibition unit from the Treasury Department to the Department of Justice, was objectionable because it was stated that the usual allotment of alcohol and whisky to physicians would be abolished. Through the intervention of the American Medical Association, with the St. Louis Medical Society and the State Medical Association cooperating with similar organized bodies throughout the country, the Porter Bill was amended to harmonize with the wishes of the medical profession and the Department of Justice abandoned its intention to abolish the allotment of alcohol and whisky to physicians.

In local legislation the St. Louis Board of Aldermen approved a bill to reorganize the department of public welfare which among other changes provides for a medical director of the City Hospital who will have full charge of the medical care of the inmates leaving the business administration in the hands of a superintendent.

The periodic question of compulsory vaccination against smallpox in the public schools came up in the form of a resolution in the board of education which if adopted would have per-

mitted permanent enrollment of unvaccinated children. As usual the small quota of anti-vaccinationists staged their regular furor, which made good copy for the newspapers. The wrangle, contributed mostly by the antivaccinationists, suddenly ceased when the board of education calmly tabled the resolution.

The attention of the state board of health was directed to a course that barber colleges proposed to include in a six months' curriculum for barber students "for the purpose of enabling the student to recognize and keep down the spreading of contagious diseases." The subjects these unschooled persons (no standard of education is required of barbers) were expected to absorb in six months were "bacteria, infection, disinfectants, antiseptics, muscles, nerves, bones, heart action, blood vessels, lungs, nerve supply, arteries, pulse, digestion, respiration and glands of the skin." The secretary of the board of health immediately informed the barber colleges that such a course would not be permitted and required them to submit all propositions to the board for approval.

A number of fly-by-night medical doctors licensed in other states but not in Missouri posing as instructors in different specialties invited members through the medium of newspaper advertising and personal letters to form classes and pay generous fees for the privilege of being "instructed." These gentry were promptly investigated, much to their discredit, and reported to the St. Louis Department of Health. In each instance the health department kept the self-styled instructors under surveillance during their stay in the city.

The cooperation of the society with the Federal Government in the inspection of meat sold in interstate commerce was begun. This service has grown to be a very important phase of the society's recognition of its responsibility in protecting the public health. As yet no system of inspection has been adopted by plants selling meat and other products of packing plants solely within the borders of the state because the St. Louis Health Department has no funds for the employment of such inspectors. Plans toward correcting this deficiency are being developed. One result of this cooperation with the Federal Government, among many benefits flowing from it, is the decision of the board of education to purchase only inspected meat for use in school cafeterias and the probable action by hospitals both private and municipal to adopt a similar rule.

Personal contacts were made during the year with the Chamber of Commerce, the Safety Council, the Department of Internal Revenue, Narcotic Department both local and Federal, Better Business Bureau, Department of Public Welfare, the State Board of Health,

Insurance Carriers, Workmen's Compensation Commission, Associated Industries, Radio Broadcasting Stations, the Police Department, the Press, and many other civic, public, and charitable organizations. Without exception all these organizations extended a cordial reception to Mr. Bartelsmeyer and expressed sincere approval of the plan to put the medical society in close contact with the public through their organizations and they promised their full cooperation.

As was contemplated when the proposition of employing an executive secretary for the St. Louis Medical Society was approved by the Executive Committee, Mr. Bartelsmeyer has prepared himself to perform excellent service for the State Medical Association during the present session of the legislature.

Meeting the problems we have mentioned, and many that could not be touched in this brief resumé, together with promotional work of the society, such as establishing a credit list of patients, planning an educational program for the public and creating an endowment fund, made a busy year the fruits of which will redound to the credit of the St. Louis Medical Society and the welfare of the citizens of St. Louis.

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### THE JOPLIN PROGRAM

The Program Committee has been developing its plan for the Joplin Session which convenes on May 11 and will announce the speakers and subjects in a tentative draft in our March issue.

The success that has marked the presentation of subjects grouped in symposia has encouraged the Committee to prepare several symposia for the Joplin Session. As contemplated at this writing there will be three such groups, namely, a symposium on appendicitis with seven divisions, a symposium on heart disease with four divisions, and a symposium on traumatic surgery with four divisions.

Contributions from individual members have been offered on numerous subjects which forecast an interesting and instructive session. The Committee is especially pleased with the offerings that have come from members living in sections of the state removed from the two large cities. Thus far there have been seven papers promised from such members.

Members living in St. Louis who wish to offer papers for the program should communicate with Dr. Robert F. Hyland; those who live in Kansas City should present their requests to Dr. James E. Stowers; other members should send their requests to the Secretary of the Association who is also chairman of the committee.



## THE GENERAL ASSEMBLY

The present outlook appertaining to legislation in the 56th General Assembly offers little that will require our attention. The Committee on Public Policy is preparing a bill to amend the workmen's compensation law by increasing the amount allowed for the first sixty days of treatment from \$250 to \$750. At the last session of the legislature a bill was introduced which removed all limits. That bill did not pass. The prospect seems encouraging for the passage of the bill to be introduced at this session. Thus far the Committee on Public Policy does not contemplate introducing any other bills.

At this writing no bills have been introduced which touch the practice of medicine or affect the physician. Of course we expect to see an antivivisection bill, probably limiting its provision by prohibiting experimentation on dogs only as was done in the Congress at Washington. Perhaps some misguided individual may attempt to amend the Medical Practice Act for there is always some one among the legislators who cannot resist indulgence in this pastime. We expect to see several bills affecting the eleemosynary institutions. From what we can learn concerning the plans of those interested in these measures the bills will be for the most part constructive in character.

Notwithstanding the absence of bills affecting the medical profession, we must be prepared to act if any measure is introduced which justifies our attention. All bills will, therefore, be scanned and many of them must be read in their entirety so that no objectionable clause will be sandwiched in a bill that on its surface seems innocent of any provision affecting the practice of medicine.

Members are requested to inform the secretary of any proposed legislation that comes to their knowledge which might need the attention of our Association.

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## KANSAS CITY SESSION OF GOITER ASSOCIATION

Under the presidency of Dr. Kerwin W. Kinard, Kansas City, the American Association for the Study of Goiter will hold its 1931 session in Kansas City, April 7, 8, 9. The association was organized in 1925 by a group of men who believed there was a distinct place for a society whose members would study cooperatively the various medical, surgical, pathological and roentgenological conditions associated with thyroid disease. The phenomenal increase in membership and the character of contributions to the programs of the meetings indicate that the judgment of the organizers of this association was well founded.

It is probably true that many persons now

die from nervous and cardiorenovascular manifestations which can be traced to a toxic goiter as the underlying cause. Many of these persons can be saved to become strong and happy citizens with probably no economic loss to the country if we can diagnose the goiter condition in its early stages and institute corrective therapy. It is one of the principal functions of the association to discover methods of early recognition and proper treatment of abnormal conditions in the thyroid gland.

There are few physicians now practicing general medicine who have not been captivated by the tremendous strides the profession has made in studying the etiology, diagnosis and treatment of goiter. All of us, general practitioners as well as specialists, are deeply interested in knowing what recent advances have been developed in the treatment of diseases of the thyroid gland. Almost daily we are learning that dysfunction in this organ may have effects so remote that the mind only slowly questions the possibility of a thyroid disturbance as the underlying cause.

The program at the Kansas City session will include talks and papers by men well recognized throughout the country for their progressive studies in goiter. Operative clinics as well as diagnostic sessions at the different hospitals will be helpful diversions to the didactic work. The meeting is sponsored by the Jackson County Medical Society, the Kansas City Southwest Clinical Society and the Kansas City Academy of Medicine.

Every member of the State Medical Association is invited to attend the meeting. It is believed that the visit will well repay those who do go for they will hear the leaders in this phase of medicine and surgery tell about the newest and best methods of diagnosing and treating thyroid conditions. The society has tried to distribute its proceedings each year and in this way reach as many members of the profession as possible, but the printed page cannot take the place of the stimulus gained by personal attendance and visualization of the one who delivers an address.

Members desiring further information concerning the meeting may address the president, Dr. Kerwin W. Kinard, 1102 Professional Building, Kansas City.

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## GUARDING THE PORTALS

It is gratifying to note in the report of the United States Public Health Service that there was no instance of the importation from abroad of any quarantinable disease into the United States during the year ending June, 1930. But further than this, the report tells that this fortunate experience was due to the system of control of domestic ports and medical inspection maintained at foreign ports.

To obtain a result such as this, a well built up system is necessary and statistics tell something of the work that lay behind. During the year there were 17,619 vessels and 914,878 passengers, and 1,163,915 seamen inspected by quarantine officers upon arrival at domestic ports; at insular ports, 3,026 vessels, 141,416 passengers, and 216,326 seamen were inspected; and at foreign ports, 4,926 vessels, 514,590 passengers, and 410,604 seamen were inspected prior to embarking for the United States.

Of passengers who embarked at European ports, 56,115 were vaccinated and 74,509 were deloused under supervision of medical officers of the service. The clothing and baggage of these passengers amounted to 96,381 pieces.

A total of 5,189 vessels were fumigated either because of the occurrence of disease on board or for the destruction of rodents as a plague prevention measure.

The medical examination of aliens abroad is conducted in cooperation with the State Department and the Immigration Service of the United States Department of Labor.

Medical examination of applicants for immigration visas in European countries was so successful during the year that it is proposed to extend the system to additional foreign countries. Only 23 immigrants from these European countries were deported on arrival at domestic ports. A total of 156,370 applicants for immigration were examined. Of these, 20,167, or 12.9 per cent, were found to have mental or physical defects and 8,608, or 5.5 per cent, were refused visas for other medical reasons.

Four vessels arrived upon which smallpox had occurred and meningococcus meningitis also occurred on some vessels during the year. Upon arrival patients and contacts are detained for observation at the quarantine stations.

Special precautions were taken during the year on account of an outbreak of cholera in the Philippine Islands, the presence of yellow fever on the Gold Coast of Africa and in South America, and the flare-up of psittacosis in November, 1929.

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## NEWS NOTES

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"Read-the-Label" talks which W. W. Vincent, chief of the western district for the Federal Food and Drug Administration, has been broadcasting through two stations are now being broadcast through eight additional stations in the Far West. The talks, according to Morse Salisbury, chief of the radio service of the United States Department of Agriculture, are an attempt by the administration to interpret the standards for foods and drugs so that the consumer will be educated to have confidence in the statements on the labels as a guide in purchasing foods and drugs.

The New York Polyclinic Medical School and Hospital, New York City, dedicated a new twelve-story addition to the institution December 29, 1930. The addition was constructed at a cost of \$1,500,000 and will provide more space for clinics, teaching, private rooms and operating rooms.

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Dr. O. E. Kiessling, Washington, D. C., has been appointed chief economist and W. W. Adams chief statistician of the newly created demographical division of the United States Bureau of Mines, Department of Commerce. Their duties will be to conduct statistical studies relative to the health, safety, and welfare of persons employed in mineral and related industries.

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The National Society for the Prevention of Blindness has announced a new publication, *The Sight-Saving Review*, to be issued quarterly beginning in February. The magazine will be devoted to all aspects of the prevention of blindness and conservation of vision and will be designed for use of state and local workers in the field.

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Yellow fever did not appear in the United States or its possessions during the last year according to a report recently made by the United States Public Health Service for the year ending June, 1930. Yellow fever has not appeared in epidemic form in the United States since 1905. A previous resumé of international health conditions reported the presence of the disease in Brazil and Colombia showing the possibility of its introduction into this country. Incidence of malaria increased in some of the southern states. Case and death rates for diphtheria reached a low record for the year showing 71.4 cases and 6.6 deaths per 100,000. Prevalency of influenza and pneumonia was comparatively low. During the spring of 1930 the incidence of meningococcus meningitis which has steadily increased since 1924 dropped below the figures for 1929. Pellagra has increased gradually from 2.5 deaths per 100,000 in 1924 to 5.7 in 1928, but in 1929 the death rate was 5.5. During the calendar year 1929, the incidence of infantile paralysis was lower than it had been since 1926 but by the end of June, 1930, there was a marked increase in the number of cases reported. Smallpox has increased from 34,685 cases in 1927 to 41,458 in 1929, but there were only 442 deaths. Low records were reported for tuberculosis and typhoid fever. Undulant fever, tularemia and typhus fever were reported but not with any degree of prevalence.





DR. CHAS E. HYNDMAN

Dr. Charles E. Hyndman, St. Louis, was installed as president of the St. Louis Medical Society, January 6, 1931. Dr. Hyndman was elected unanimously, there being no other candidate for the position. He is a member of the staffs of St. Luke's and the De Paul hospitals and was a visiting surgeon at the City Hospital for a number of years, is chairman of the defense committee of the State Medical Association and is a former vice president and councilor of the St. Louis Medical Society. Dr. Hyndman was graduated in 1906 from the Washington University School of Medicine and did postgraduate work in Berlin for a year following his graduation. He succeeds Dr. Vilray P. Blair as president of the society. Other officers for 1931 who were installed at this meeting are: Dr. Joseph C. Peden, first vice president; Dr. A. R. Schreffler, second vice president; Dr. Alvin H. Diehr, secretary; councilors are Drs. Howard H. Bell, Herbert Langsdorf, William H. Vogt, and V. P. Blair.

Dr. Edward H. Skinner, Kansas City, was installed as president of the Jackson County Medical Society at the meeting of the society, January 6, succeeding Dr. Frank C. Neff. The president-elect is Dr. A. J. Welch who will become president in January, 1932. Dr. Skinner was graduated from the St. Louis University



DR. EDWARD H. SKINNER

School of Medicine in 1904. About five years after his graduation in medicine, Dr. Skinner spent a year in Europe studying roentgenology. Since that time he has devoted himself entirely to this branch of medicine and has gained national recognition as a leader in this specialty. At the Washington session of the American Medical Association in 1927 Dr. Skinner was elected chairman of the Section on Radiology and in the same year he was elected president-elect of the American Roentgen Ray Society at its Montreal session. He was organizer and first president of the Kansas City Southwest Clinical Society, a former president of the Medical Association of the Southwest and of the Medical Society of the Missouri Valley. The Jackson County Medical Society dates its activities from 1881, hence this year marks its progress for half a century. The society was originally established in 1874 and maintained a feeble existence for about four years when it ceased to function. All the records of this early effort at maintaining a society were destroyed by fire. In 1881 the physicians revived the spirit of organization and formed the Jackson County Medical Society as it is at present constituted. The officers elected in 1881 were Dr. C. D. McDonald, president; Dr. Joshua Miller, vice president; and Dr. C. W. Adams, secretary.

Dr. L. C. Chenoweth, Joplin, was elected president of the Jasper County Medical Society at the annual meeting of the society, December 2. Dr. Chenoweth was graduated from the Missouri Medical College, St. Louis, in 1886.



DR. L. C. CHENOWETH



DR. L. H. FUSON

His instinct for the practice of medicine is a family inheritance, his father, grandfather, and great-grandfather having been physicians. He is a graduate in pharmacy and practiced that profession for a while before beginning his medical studies. Following the completion of his course in medicine he interned in St. John's Hospital, St. Louis, under Dr. T. F. Prewitt. Dr. Chenoweth located in Webb City in 1899 and moved to Joplin in 1918. He has attended numerous postgraduate courses in Chicago and New York and being located in a mining community while in Webb City he devoted his efforts almost entirely to industrial surgery. However, Dr. Chenoweth claims that his "specialty" in medicine is attending medical meetings. He attended his first State Medical Association meeting in 1899 and since then has missed few meetings of the State Medical Association, the American Medical Association, or local clinical and county society meetings. He has frequently been elected a delegate to the State Association meetings and served as a member of the committee on public policy for a number of years. Dr. Chenoweth holds seniority in point of length of membership of the Jasper County Medical Society. This is the second time the honor of being president of the Jasper County Medical Society has been conferred on him.

Dr. L. H. Fuson, St. Joseph, was elected president of the Buchanan County Medical Society, December 3, 1930. Dr. Fuson was vice president in 1930 and he succeeds Dr. E. M. Shores as president. Dr. Fuson was graduated from the Washington University School of Medicine in 1915 and interned in internal medicine during the following year in Barnes Hospital, St. Louis. Dr. Fuson spent two years overseas in the World War as lieutenant and captain in the medical corps. He joined Base Hospital No. 21 from St. Louis, which was located with the British forces at Rouen, France, serving from May, 1917, to February, 1919. He was then transferred to the American Expeditionary Forces and assigned to Base Hospital No. 210 at Toul, France, where he remained until June, 1919. He is a member of the active staffs of the St. Joseph's and the Missouri Methodist hospitals. Other officers elected for 1931 were Dr. W. R. Moore, St. Joseph, vice president; Dr. W. T. Stacy, St. Joseph, secretary (reelected); and Dr. J. M. Bell, St. Joseph, treasurer (reelected).

Dr. Otto C. Horst, Springfield, was elected president of the Greene County Medical Society at the meeting of December 12, 1930. Dr. Horst has been located in Springfield since 1910 with the exception





DR. OTTO C. HORST

of the two years he was in service during the World War. He was born in Newport, Kentucky, but received his preliminary education in Seymour, Indiana. He obtained his medical degree from Washington University School of Medicine in 1909 and interned at the St. Louis City Hospital during the following year. From 1910 to 1916 Dr. Horst was house surgeon of the Frisco Hospital, Springfield. In 1917 he began private practice in Springfield but interrupted this a year later on account of the World War when he was commissioned first lieutenant in the United States Army Medical Corps and was assigned to Hospital No. 16, Fort Oglethorpe, Georgia. Since 1919 he has continued his practice in Springfield. Dr. Horst was president of the Southwest Missouri Medical Society, 1926-1927, and was vice president of the Greene County Medical Society in 1930. Other officers elected were: Vice president, Dr. U. J. Busiek, Springfield; secretary, Dr. J. N. Wakeman, Springfield (reelected); treasurer, Dr. Walter E. Handley, Springfield (reelected).

In the biennial report of the board of curators of the University of Missouri to the state legislature, an appropriation of \$8,032,545

for expansion and maintenance during the next two years was requested. Salaries represent the largest increase and there is no question about the need for increasing the salaries because the staff is being depleted by teachers going to schools where the salaries and working conditions are more attractive.

The medical staff of the Kansas City General Hospital is selected by the Kansas City Health and Hospital Board from physicians nominated by the Jackson County Medical Society. The officers are elected annually and those chosen for 1931 are: President, Dr. Paul F. Stookey; vice president, Dr. Eugene P. Hamilton; secretary, Dr. E. P. Heller; treasurer, Dr. Morris Simpson; sergeant-at-arms, Dr. C. C. Capell; directors, Drs. G. Wilse Robinson, E. Lee Miller and T. O. Aschman.

The American Board of Obstetrics and Gynecology, composed of nine members and examiners for the purpose of granting certificates indicating proficiency and specialization in obstetrics or gynecology, or both, was organized in Niagara Falls, September 16, 1930. The first examination of candidates will be held simultaneously in nineteen cities, March 14, 1931. Dr. G. D. Royston, St. Louis, is one of the members of the board which was elected by the American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, the American Gynecological Society, and the Section on Obstetrics, Gynecology, and Abdominal Surgery of the American Medical Association. The forming of this board is an effort on the part of these three national organizations to improve the standards of practice in obstetrics and gynecology by investigating and encouraging graduate extension study facilities and active clinical assistantships in these lines. The aim is toward standardized qualifications for specialists in obstetrics and gynecology and not to interfere or limit the professional activities of any licensed physician. Certificates may be granted outstanding specialists on their attainments but only by a vote of the entire board, to those passing a practical clinical examination, and to younger physicians who pass both a written and clinical examination and submit records of cases. The examinations will be such that any well qualified obstetrician or gynecologist should have no difficulty in obtaining a certificate. Detailed information and application blanks may be secured from Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh, Pennsylvania.

The St. Louis Medical Society and Dr. Max Starkloff, St. Louis Health Commissioner, have endorsed a fact finding survey of the cancer control facilities in St. Louis to be conducted by the American Society for the Control of Cancer. Dr. Frank L. Rector, New York, field representative of the Cancer Society, has begun the survey which it is estimated will be completed about March 15.

A cancer memorial fund has been established by the Barnard Free Skin and Cancer Hospital, St. Louis. An anonymous gift of \$5,000 was recently turned over to the hospital officials as a memorial to J. William Frank, a St. Louis citizen who died of cancer. Conditions of the gift stipulate that this become a separate fund and the income be used in the aid of cancer patients and for items that cannot be met by current funds of the hospital. In the event a cure for cancer is discovered the entire amount can be spent. It is hoped that this sum will become the nucleus of a much larger fund to be used as the conditions of this gift set forth. The Barnard Free Skin and Cancer Hospital has treated an increased number of patients during the last year, 2,732 having been assisted. A total of 702 resident patients were treated representing 12,069 hospital days. There were 626 operations and 18,706 clinical consultations with an average attendance at clinics of 80. The hospital was established in 1905, has 40 beds and an outpatient department.

The first award under the Thomas W. Salmon Memorial was bestowed on Dr. Adolph Meyer, Baltimore, professor of psychiatry, Johns Hopkins University, at a meeting of the New York Academy of Medicine, January 10. The award was made by a committee of the Academy appointed to select the outstanding contributor to scientific advancement of mental medicine. The monetary award was \$2,500 and the recipient will give the Thomas W. Salmon Lectures during 1931. The memorial consists of an endowment fund of \$100,000 contributed by friends and associates of the late Dr. Salmon. At the meeting of January 10 the fund was officially presented to the New York Academy of Medicine to administer and active work under the memorial was begun. Dr. Meyer is one of the world's leading psychiatrists and has been an important factor in the development of modern methods of approach to the treatment, control and prevention of mental disease. The Academy's announcement mentions an incident of Dr. Meyer's career not generally known, that the term "mental hygiene" was first suggested and used by him.

Dr. William Edward Gallie, Toronto, Canada, delivered the tenth Hodgen Lecture, January 13, at the St. Louis Medical Society auditorium. The lecture is given annually under the auspices of the St. Louis Surgical Society and the Medical Fund Society as a memorial to Dr. John T. Hodgen. Dr. Gallie spoke on "Recent Advances in the Transplantation of the Fibrous Tissues."

Dr. W. T. Coughlin, St. Louis, delivered an illustrated lecture on "The Relief of Dysfunction and Disfigurement Due to Burns" before the Missouri, Kansas and Iowa Section of the American College of Surgeons at St. Joseph on January 6. On January 13, he was a guest of the Kansas City Southwest Clinical Society and delivered an illustrated lecture on "Acute Surgical Conditions of the Abdomen." On the evening of the same day he was the guest of the Jackson County Medical Society and read a paper entitled "My Personal Experience with Sympathectomy for Arthritis."

Nine Missouri cities were included in a group of twenty-three visited by a representative of the bureau of prisons of the department of justice, Washington, relative to the selection of a site for a hospital for defective delinquents. Congress passed legislation making available a \$2,500,000 fund for an institution to house defective delinquents now cared for in federal prisons. The fund carries a \$400,000 operating account and salary expense of \$325,000 yearly. Towns in Missouri responding to the Government's request for suitable sites to be offered for the institution are St. Joseph, Springfield, Poplar Bluff, Carthage, Kansas City, Clinton, Sedalia, Trenton, and Nevada. Towns in Iowa, Illinois and Indiana also offered sites to the Government.

The fifteenth annual clinical session of the American College of Physicians will be held in Baltimore, Maryland, March 23 to 27, and in Washington, D. C., March 28. There will be fifty papers on the scientific program which will include symposia on blood diseases, oxygen therapy, diseases of the liver, recent advances in endocrinology, and myocarditis. Johns Hopkins Hospital and Medical School will place its facilities at the disposal of the group. In Washington, a program of clinics and inspection tours have been arranged under the auspices of the medical departments of the United States Army, the Navy and the Public Health Service. Dr. William Gerry Morgan, Washington, president of the American Medical Association, is chairman of the committee on arrangements of the meeting in Washington.



Dr. R. B. H. Gradwohl, St. Louis, will sail February 5 on the S. S. *Rotterdam* for Europe, going by way of the Mediterranean to Vienna, thence to Berlin and Hamburg. He expects to do some work in each of these places. He will return about May 1.

Dr. Richard L. Sutton, Kansas City, was the guest of the Northwest Missouri Press Association in St. Joseph, January 9, and entertained the members of the newspaper fraternity with an account of his recent hunting expedition in Africa which he called "The Big Trek." His talk was illustrated with many interesting pictures showing various phases of the hunt.

The American Association for the Study of Goiter is again offering an award of \$300 for the best essay based on original research work on any phase of goiter. The papers are to be presented at the annual meeting in Kansas City, April 7, 8, 9, but must be submitted by April 1 to Dr. J. R. Yung, Terre Haute, Indiana. The award is made with the hope that valuable research work especially in regard to the basic cause of goiter will be stimulated. The award for 1930 was given to Dr. William F. Rienhoff, Jr., Baltimore.

An examination of candidates for commission as assistant surgeon in the regular corps of the United States Public Health Service will be held at Washington, D. C., March 9, 1931. Candidates must be between twenty-three and thirty-two years of age, must have been graduated in medicine by a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers. Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Request for information or permission to take the examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

The Kansas City Southwest Clinical Society will hold its next monthly hospital clinic at St. Luke's Hospital, Kansas City, February 13. Dr. George W. Crile, Cleveland, will be the guest speaker. The subject of Dr. Crile's address could not be obtained in time for this issue. Following Dr. Crile's address there will be demonstrations of necropsy specimens in relation to clinical material and discussion of clinical symptoms.

The Riggs Optical Company which has been continuously represented in our advertising pages for a number of years, announces the appointment of Mr. Edward W. Arnold, well known territorial supervisor for the company, as manager of the company's Chicago city office. Mr. Arnold has had many years' training and experience in the optical field. He is a qualified executive and is conversant with all phases of optical work and service. He has shown unusual ability to serve and please his clientele. His knowledge of the problems which confront the medical profession and his cooperative spirit will be welcomed by those in the territory served by Riggs.

Mr. J. A. Lynch, who also has a long and creditable record in optical circles, has been selected as assistant to Mr. Arnold.

A report recently issued by the United States Public Health Service deals with influenza and pneumonia mortality in the 50 cities of the United States that had 100,000 or more in population in 1910. For 35 of these cities, with an aggregate population of nearly 25,000,000, the number of deaths from influenza and pneumonia by weeks are available from September, 1918, to the present time. Deaths for the country as a whole are not available by weeks, and so these data for this large group of cities has considerable significance. To supplement them, monthly influenza and pneumonia death rates have been computed for the same cities for the years 1910 to 1918.

Since 1915 there have occurred ten distinct periods, each of 8 to 31 weeks' duration, in which the mortality from influenza and pneumonia in this group of widely dispersed cities was so greatly increased as to denote epidemic conditions. Minor epidemics prior to the 1918 pandemic occurred in January, 1916, January, 1917, and April, 1918, with a very slight rise in the mortality in April, 1915, also. We are accustomed to think of the epidemic of 1918 as occurring in the fall, and it is true that the enormous peak, which occurred in the middle of October, overshadowed all prior and subsequent recorded epidemics. In addition to this tremendous peak, the epidemic stretched out over a period of 31 weeks, from September 15, 1918, to April 19, 1919, and even as late as the latter part of January, 1920, the mortality from influenza and pneumonia in excess of the expected rates for that season of the year was greater than the excess mortality during the epidemic of 1929. In the early months of 1920 a very sharp epidemic occurred, with excess mortality greater than during any other epidemic since the 1918 epidemic. In February, 1922, February, 1923, March, 1926, and January, 1929,

other epidemics occurred, and in May of 1928 there was a slight rise in the influenza mortality which extended to many sections of the country. The combined excess mortality from influenza and pneumonia during these six epidemics that have occurred since the pandemic of 1918 was only about one-half of that of 1918-19.

In addition to the data for the group of cities, this report contains monthly excess death rates for each of the 50 cities throughout the period 1910-1929 and weekly excess death rates for a large number of the cities during the three major epidemics, 1918-19, 1920, and 1928-29. In every one of the various epidemics, even including the pandemic of 1918-19, there is great variation in the severity of the different epidemics in different cities. Moreover, there are periods of excess mortality from influenza and pneumonia in certain cities and sections of the country which are not of sufficient importance to show up in the combined data for the country as a whole.

The report is intended as a rather detailed history of influenza and pneumonia mortality during the past twenty years as a background for the consideration of the present situation with respect to the respiratory diseases.

A compound, tri-ortho cresyl phosphate, has been definitely identified as the cause of ginger paralysis according to a recent announcement by the United States Public Health Service. This chemical is the main constituent of technical tricresyl phosphate which is widely used in the manufacture of shellacs, varnishes and similar preparations. It is cheap and readily obtained and appears to have been used to replace ginger. Investigations have been under way since the wide appearance of "jake paralysis" last winter and spring. It was determined that the poison was some form of phenol and by injection under the skin or oral administration of tri-ortho cresyl phosphate in laboratory animals a paralysis of the extremities was produced uniformly. The United States Public Health Service found no record of a case of this type of paralysis caused by ginger preparations manufactured by reputable concerns. The Public Health Service further says, "The precise reason for including this remarkable substance as one of the ingredients of a substandard fluid extract of ginger made and sold for beverage purposes will probably never be known, unless a confession is wrung from the guilty ones. It seems entirely reasonable, however, to suppose that it was included on account of its physical or other properties which make it difficult to distinguish from the normal ginger constituents.

Only a chemist of considerable ability could have thought of this; and had there been anything known about the pharmacologic action of this substance and the possible dire consequences, it is probable that it would never have happened. From this the question naturally arises as to whether there are not many other organic compounds of great medicinal interest, perhaps some with great possibilities for the treatment of disease, awaiting the attention of investigators."

Plans for a new nurses' home of the St. Louis City Hospital are being completed and construction work will be started early in the spring. The building is scheduled to be completed in about ten months. It will be six stories and will cost \$600,000. It will be constructed of concrete and brick. The home will accommodate 288 nurses and will have quarters for the superintendent of nurses and supervisors. A parlor and recreation are planned for the first floor and a gymnasium on the second, the class-rooms and a library to be located in the basement. Each floor will have a solarium and kitchenette for preparing lunches and emergency meals.

The St. Louis Trudeau Club will hold its regular monthly meeting on Thursday night, February 5, in the auditorium of the St. Louis Medical Society. Dr. E. E. Glenn, Mt. Vernon, superintendent of the State Sanatorium for Tuberculosis, will contribute a paper entitled "Massive Atelectasis in Pulmonary Tuberculosis; Its Treatment by Artificial Pneumothorax." Members of the Association are invited to attend the meeting.

Surgical nomenclature was criticized severely by Dr. Carl E. Black, Jacksonville, Illinois, retiring president of the Western Surgical Association, in his presidential address at the meeting held in Kansas City December 5 and 6, 1930. He characterized the growth of surgical terminology as mushroom-like. As one procedure in the simplification of terminology, Dr. Black expressed the opinion that all names of individuals should be omitted from the definition of an operation and these names embodied in appendices and historical data. He suggested that a group of surgeons representing various organizations meet and agree upon a standardized and simplified nomenclature and a committee to confer with the American Medical Association and the American College of Surgeons on this subject was appointed. The members of the committee are Dr. Carl E.



Black; Dr. E. Starr Judd, Rochester; Dr. Kellogg Speed, Chicago; and Dr. Harry P. Ritchie, St. Paul.

The following articles have been accepted for New and Nonofficial Remedies:

Cutter Laboratory

Oak Pollen Extract-Cutter; Western Ragweed Pollen Extract-Cutter; Western Water Hemp Pollen Extract-Cutter

Gane & Ingram, Inc.

Ephedrine Hydrochloride

Ephedrine Sulphate

Lederle Laboratories, Inc.

Diphtheria Toxoid, ten immunization treatment packages

Diphtheria Toxoid, fifteen immunization treatment packages

Tetanus-Gas Gangrene Antitoxin (Lederle)

Gas Gangrene Antitoxin (Polyvalent) Refined and Concentrated without Tetanus Antitoxin (Lederle)

Mead Johnson & Co.

Mead's 10 D Cod Liver Oil with Viosterol

National Drug Co.

Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic) one hundred and fifty 1 c.c. vial packages

Diphtheria Toxoid, five (three dose) immunization treatment packages

Diphtheria Toxoid, fifty (three dose) immunization treatment packages

Diphtheria Toxoid, one (two dose) immunization treatment packages

Diphtheria Toxoid, five (two dose) immunization treatment packages

Diphtheria Toxoid, ten (two dose) immunization treatment packages

Diphtheria Toxoid, fifteen (two dose) immunization treatment packages

Diphtheria Toxoid, fifty (two dose) immunization treatment packages

Schick Test

Schick Test Control

Tuberculin Old (Human)

Parke, Davis & Co.

Parke, Davis & Co.'s Viosterol in Oil 250 D

Parke-Davis Cod-Liver Oil with Viosterol 10 D

Winthrop Chemical Co., Inc.

Winthrop Viosterol in Oil 250 D

## OBITUARY

T. LEE GLOVER, M.D.

Dr. T. Lee Glover, Eugene, a graduate of the National University of Arts and Sciences, St. Louis, 1901, died December 20, 1930, of

angina pectoris, while calling on a patient. He was 52 years of age.

Dr. Glover had practiced medicine in Eugene and the surrounding country for thirty years. He was untiring in his service to patients and was always active in the affairs of his community. He was a member of the Eugene school board for a number of years and was a vice president of a local bank and was local surgeon for the Rock Island railroad. He was a member of the Miller County Medical Society and a Fellow of the American Medical Association.

Dr. Glover is survived by his widow, Mrs. Leona Glover, and two daughters, Miss Pearl Glover, a teacher in Jefferson City, and Mrs. Parker Norfleet, Eugene.

### LOUIS H. DAVIS, M.D.

Dr. Louis H. Davis, St. Louis, a graduate of Missouri College of Medicine and Science, St. Louis, 1890, died in St. John's Hospital, St. Louis, January 7, following an abdominal operation, aged 68.

Dr. Davis had practiced medicine in St. Louis for forty years and was held in high esteem by his friends and colleagues. Dr. Davis specialized in obstetrics. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

Dr. Davis is survived by his widow, Mrs. Kate Davis, and two sons, Charles R. Davis and Dr. Henry G. Davis, a dentist.

### LOUIS F. BODE, M.D.

Dr. Louis F. Bode, St. Joseph, a graduate of Central Medical College, St. Joseph, 1903, died at his home, December 11, 1930, aged 60.

Dr. Bode was born in Germany and was orphaned at the age of 6. He came to this country with an older brother when he was 8 years old and made his home with another brother in St. Joseph. He received his preliminary education in the public schools of St. Joseph and began practice there upon completion of his medical course. For a number of years he was county health officer and served as deputy state health commissioner from 1925 to 1928.

Dr. Bode had many friends and was always interested in professional and lay activities. He was a member of the Buchanan County Medical Society.

He is survived by his widow, Mrs. Angie Bode; and two sisters, Mrs. John Schmidt and Mrs. Henry Kueker, of St. Joseph.

## ROSWELL H. TRUMPOUR, M.D.

Dr. Roswell H. Trumpour, Kirkwood, a graduate of the Missouri College of Medicine and Science, St. Louis, 1901, died December 12, 1930, aged 54.

Dr. Trumpour was a native of Ontario, Canada. He received his preliminary education in the Picton Public School and Picton High School, Picton, Ontario, Canada. After completing his medical education he practiced in Spring Bluff, Missouri, for nine years. He removed to St. Louis in 1910 and practiced in that city for several years before going to Kirkwood.

Dr. Trumpour had many friends and was highly esteemed by the members of his profession. He was a member of the St. Louis County Medical Society.

He is survived by his widow, Mrs. Lucy Trumpour, and a son.

The St. Louis County Medical Society adopted the following resolutions on the death of Dr. Trumpour:

WHEREAS, God in His infinite wisdom has seen fit to remove from our midst our beloved brother, Dr. Roswell Henry Trumpour, be it

*Resolved*, That the members of our Society extend our sympathy to the widow and son, and be it further

*Resolved*, That our Society has lost a valued member and that the community in which he lived will miss his kindly and helpful ministrations, and be it further

*Resolved*, That a copy of these resolutions become a part of the records of this Society and that a copy be sent to his widow.

GARNETT JONES, M.D.  
H. N. CORLEY, M.D.  
E. L. FREDERICHs, M.D.  
Committee.

## THOMAS PETER FORE, M.D.

Dr. Thomas P. Fore, Brookfield, a graduate of Barnes Medical College, St. Louis, 1893, died at his home December 25, 1930, following a stroke of paralysis, aged 59.

Dr. Fore was born near Linneus, Missouri, and received his preliminary education in the public schools of that town. He began reading medicine in the office of Dr. A. J. Berry, Purdin, and later entered the medical department of the University of Louisville, but finished his studies at the Barnes Medical College, St. Louis. He began practice in Lemonville, Missouri, immediately after his graduation. In 1894 he purchased the practice of Dr. B. B. Putman at Brookfield and remained in practice there with the exception of time spent in a postgraduate course in eye, ear, nose and throat diseases at St. Louis Medical College, and during the World War when he was a surgeon in the army.

Dr. Fore was studious in the pursuit of his profession keeping up with improved practices and new information. His practice grew from year to year as his skill increased and he was held in high esteem by his patients and his colleagues. He served several terms as health commissioner of Brookfield, was a member of the Linn County Medical Society and a Fellow of the American Medical Association.

He is survived by his widow, Mrs. Elizabeth Fore, two brothers, one being Dr. S. G. Fore, D.D.S., Kansas City, and two sisters.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

### AUDRAIN COUNTY MEDICAL SOCIETY

At the annual meeting of the Audrain County Medical Society held in December, the following officers were reelected for the year 1931: President, Dr. Fred Griffin, Mexico; vice president, Dr. J. G. Moore, Mexico; secretary-treasurer, Dr. H. C. Brashear, Mexico; delegate, Dr. R. W. Berrey, Mexico; alternate delegate, Dr. William Ford, Mexico.

### BATES AND VERNON-CEDAR COUNTY MEDICAL SOCIETIES

The Bates and Vernon-Cedar County Medical Societies met in joint session at Butler, Thursday, December 11, 1930. Dinner was served in the dining room of the First Christian Church by the ladies of the church. We had as our guests Drs. O. S. Gilliland and Frank I. Ridge, of Kansas City who represented the Postgraduate Committee of the State Association.

Dr. Gilliland addressed the Society on "Sinusitis." A paper on "Poison Ivy: Vaccine Method of Treatment," was presented by Dr. H. A. Rhodes, Foster.

Dr. Frank I. Ridge, Kansas City, read a paper on "Influenza."

Dr. Ridge also addressed the Woman's Auxiliaries to the Bates, Cass and Vernon-Cedar County Medical Societies.

### BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met in St. Joseph, December 3, 1930.

During 1930 six members were added to the roll,



viz: Drs. J. R. Elliott and W. H. Morris, active; Jenner G. Jones and Albert H. Muench, junior; and O. L. Perkins transferred from De Kalb County and Guy A. Koon transferred from Linn County. Three members were lost by death, Drs. Louis F. Bode, Wm. A. Robison, and S. D. Packwood.

The following officers were elected to serve during the year 1931: President, Dr. L. H. Fuson, St. Joseph; vice president, Dr. W. R. Moore, St. Joseph; secretary, Dr. W. T. Stacy, St. Joseph (reelected); treasurer, Dr. J. M. Bell, St. Joseph (reelected).

#### Meeting of December 16, 1930

At this meeting the Society had as its guests three Kansas City physicians who provided the scientific program. They were Drs. Charles J. Eldridge, Hugh L. Dwyer, and Harry M. Gilkey.

Dr. Eldridge addressed the members on "The Upper Respiratory Infections in the New-Born."

Dr. Dwyer read a paper entitled "Nephritis in Children."

Dr. Gilkey talked on "Nutritional Diseases in Children."

These subjects were very interesting and provoked a lengthy discussion.

W. T. STACY, M.D., Secretary.

#### CALLAWAY COUNTY MEDICAL SOCIETY

The Callaway County Medical Society met in Fulton, December 22, 1930.

The annual election of officers was held resulting in the selection of Dr. C. H. Christian, Fulton, president, and Dr. A. D. Ferguson, Fulton, secretary.

MARTIN YATES, M.D., Secretary.

#### CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce rooms, Cape Girardeau, December 8, 1930. The president, Dr. O. L. Seabaugh, Cape Girardeau, presided. Members present: Drs. N. F. Chostner, J. H. Cochran, A. E. Dalton, A. M. Murphy, E. C. Rolwing, M. H. Shelby, O. L. Seabaugh, E. H. G. Wilson, W. E. Yount, and C. A. W. Zimmermann, of Cape Girardeau.

Following the reading of papers and the address of the president, the following officers were elected for the year 1931: President, Dr. J. H. Cochran, Cape Girardeau; vice president, Dr. A. E. Dalton, Cape Girardeau; secretary, Dr. E. C. Rolwing, Cape Girardeau. Delegate, Dr. B. W. Hays, Jackson.

The members evinced a revival of interest in the activities of the Society and everyone present pledged loyalty to the organization and promised to contribute to the program as often as possible and attend the meetings regularly.

A. M. MURPHY, M.D., Secretary.

#### CASS COUNTY MEDICAL SOCIETY

The regular meeting of the Cass County Medical Society was held in Harrisonville, December 11, 1930. The meeting was called to order by the president, Dr. A. H. Baldwin, Pleasant Hill. The minutes of the last meeting were read and approved.

The suggestion was made that a list of those members in good standing be published in the county papers in the near future.

The application of Dr. H. S. Clay, Pleasant Hill, was read and approved by the board of censors, and Dr. Clay was elected a member.

The following officers for the year 1931 were

elected: President, Dr. M. P. Overholser, Harrisonville; vice president, Dr. George W. Griffith, Garden City; secretary-treasurer, Dr. L. V. Murray, Pleasant Hill (reelected); delegate, Dr. A. H. Baldwin, Pleasant Hill; alternate, Dr. T. W. Adair, Archie. Board of censors, Drs. David S. Long and J. S. Triplett, of Harrisonville, and Dr. H. A. Brierly, Peculiar.

Members present: Drs. A. H. Baldwin, H. S. Clay and L. V. Murray, of Pleasant Hill; M. P. Overholser and J. S. Triplett, of Harrisonville; H. A. Brierly, Peculiar; I. N. Parrish, Freeman.

L. V. MURRAY, M.D., Secretary.

#### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met December 18, 1930, at Liberty. The meeting was preceded by a turkey dinner at the "Party Place." Nineteen attended the dinner including members, wives of members, and visitors.

Dr. R. E. Sevier, Liberty, called the meeting to order in the absence of the president, Dr. E. C. Robichaux, Excelsior Springs.

The report of the secretary-treasurer was read and approved.

The Board of Censors passed on the application of Dr. E. E. Peterson, now of Halstead, Kansas, for reinstatement after four years' absence.

Dr. C. J. Hunt, Kansas City, addressed the Society on "Some Phases of Thyroid Disease." The doctor has studied extensively in Europe and at the Mayo Clinic. His talk covered history, etiology, symptoms, diagnosis, treatment, and report of cases. Members absent missed some valuable pointers.

Dr. R. L. Hoffmann, Kansas City, followed with a lecture on "Prostatitis," illustrated with lantern slides which were the best pictures many of the members had ever seen. The subject was handled in a masterful way and was worth many times more than the outlay of effort to attend the meeting. Dr. J. H. Rothwell, Liberty, reported his own experience, much to the delight of himself and his auditors.

The election of officers was held and resulted in the following men being elected: President, Dr. W. C. Hamilton, Kearney; vice president, Dr. S. D. Henry, Excelsior Springs; secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs, (reelected); censor for three years, Dr. J. H. Rothwell, Liberty (reelected); delegate, Dr. E. C. Robichaux, Excelsior Springs; alternate, Dr. R. E. Sevier, Liberty.

The secretary announced his intention of resigning on account of the increasing duties and expenses of the office but by unanimous vote the resignation was refused and the expenses of the office voted to be taken care of by the treasury.

J. J. GAINES, M.D., Secretary.

#### GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met at Mount Sterling, December 3, 1930. The meeting was preceded by a dinner at 6:00 o'clock served to seventeen physicians.

The president, Dr. Julius Lingenfelder, Hermann, presided at the meeting. The scientific program was furnished by Dr. W. C. Gayler, President of the State Association, Dr. E. J. Goodwin, Secretary, and Dr. E. P. North, of St. Louis. These

speakers represented the Postgraduate Committee of the State Association.

Dr. Norman Tobias gave a talk on "The Diagnosis and Treatment of Syphilis," illustrated with lantern slides.

Dr. W. C. Gayler read a paper on "Breech Presentation in Primiparae," reporting the latest findings.

Dr. E. P. North talked on "Eye Injuries" with relation to the Workmen's Compensation Law and the benefit of early treatment.

Dr. E. J. Goodwin, gave a resumé of the benefits derived by affiliation with organized medicine.

All of the subjects were very interesting and the members profited much by the lectures.

Among the visitors was Dr. J. S. Summers, Jefferson City, who brought with him several physicians of Jefferson City.

M. E. SPURGEON, M.D., Secretary.

### HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the County Court room at Clinton, December 17, 1930. The meeting was called to order by the president, Dr. R. J. Jennings, Windsor, at 1:30 p. m., with the following members present: Drs. Charles W. Head and R. J. Jennings, of Windsor; J. J. Russell, Deepwater; J. W. Galbreath, Urich; A. E. Derwent, E. C. Peelor and S. W. Woltzen, of Clinton.

Dr. E. C. Peelor, Clinton, moved that Dr. Charles W. Head, Windsor, be elected an Honor Member. The motion was seconded and carried unanimously.

Dr. Head has been practicing ever since his graduation from Missouri Medical College (now Washington University School of Medicine) St. Louis, in 1877. Only one other member of his class, so far as Dr. Head is aware, is living. He has been a faithful member ever since the Society was organized.

Drs. J. W. Galbreath, R. J. Jennings, E. C. Peelor, J. J. Russell and S. W. Woltzen discussed the present epidemic of jaundice and each reported a number of cases.

Officers elected for the year 1931 were: President, Dr. A. E. Derwent, Clinton; vice president, Dr. Harvey M. Wall, Windsor; secretary-treasurer, Dr. S. W. Woltzen, Clinton (reelected); delegate, Dr. R. J. Jennings, Windsor; alternate delegate, Dr. J. J. Russell, Deepwater.

The president-elect, Dr. A. E. Derwent, Clinton, in a short talk outlined methods of securing better attendance at our meetings.

S. W. WOLTZEN, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The meeting of November 18, 1930, was called to order in Joplin with fifteen members and eight visitors present. The minutes of the last meeting were read and approved.

Mr. Ladd of the Southwestern Bell Telephone Company discussed the classification of physicians in the new telephone directory according to membership in the county society. In the discussion it was requested of the company to give an opinion concerning the possibility of a telephone answering service for physicians and of giving office room numbers. On motion the matter was laid over until the next meeting in order to give the members time to consider the subject.

Dr. John Knight, Kansas City, gave an illustrated lecture on "Bronchoscopy" emphasizing the point that this procedure has advanced from the

early stage of providing a means of removing a foreign object from the lung to one of diagnostic and therapeutic value in diseased conditions of the lungs. An interesting discussion followed.

### Meeting of November 25, 1930

The meeting was called to order in Joplin by Dr. Charles T. Reid, Joplin, president, with sixteen members and seven visitors present. The minutes of the last meeting were read and approved.

It was moved and seconded that the matter of classification in the telephone directory according to membership in the county society be tabled. Carried.

The president reminded those present that the next meeting would be the annual election of officers.

Dr. L. B. Clinton, Carthage, gave a lecture on "Fractures of the Femur" illustrated with charts. His talk precipitated a discussion by practically all present and the paper again emphasized the value of having local men provide the program.

### Meeting of December 2, 1930

The meeting was called to order in Joplin by Dr. Charles T. Reid, Joplin, president, with thirty-one members present. The minutes of the last meeting were read and approved.

The secretary, Dr. O. T. Blanke, Joplin, read a letter from the Southwest Missouri Dental Society inviting our members to attend the annual clinic meeting, December 8 and 9, especially the banquet on Monday evening. Several members signified their intention of attending.

The annual election of officers was held with the following elected: President, Dr. L. C. Chenoweth, Joplin; vice president, Dr. M. O. Coombs, Joplin; secretary, Dr. O. T. Blanke, Joplin (reelected); member of the board of censors, Dr. L. B. Clinton, Carthage, to succeed Dr. R. M. Stormont, Webb City; delegates to the State Meeting, Dr. A. Benson Clark and Dr. H. D. McGaughey, of Joplin; alternates, Dr. R. L. Neff and Dr. H. L. Wilbur, of Joplin.

The scientific program was presented by Dr. W. W. Buckingham, Kansas City, who lectured on "Surgical Features of Tubercular and Nontuberculous Pulmonary Infections." His talk was profusely illustrated with lantern slides and was presented in a way which emphasized the increasing applicability of thoracic surgery. A lively discussion followed.

O. T. BLANKE, M.D., Secretary.

### LINN COUNTY MEDICAL SOCIETY

The Linn County Medical Society met in Brookfield, December 23, 1930.

The following officers were elected for 1931: President, Dr. E. F. Wier, Meadville; secretary, Dr. Ola Putman, Marceline, (reelected); treasurer, Dr. F. W. Burke, Laclede, (reelected).

OLA PUTMAN, M.D., Secretary.

### PEMISCOT COUNTY MEDICAL SOCIETY

The Pemiscot County Medical Society, at its meeting of January 6, 1931, elected the following officers to serve during the year 1931: President, Dr. J. R. Pinion, Caruthersville; vice president, Dr. Fred L. Ogilvie, Caruthersville; secretary-treasurer, Dr. W. R. Limbaugh, Hayti (reelected); delegate, Dr. J. B. Luten, Caruthersville; alternate, Dr. W. R. Limbaugh, Hayti.

W. R. LIMBAUGH, M.D., Secretary.



## ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met in Bonne Terre at the Bonne Terre Hospital, October 29, 1930.

A short business meeting preceded the scientific program.

Dr. Theodore H. Hanser, St. Louis, spoke on "Some Common Gynecological Disorders and Their Treatment."

Dr. A. M. Frank, St. Louis, gave an address on "Nontuberculous Spontaneous Pneumothorax," illustrated with radiograms.

Both papers were very instructive and provoked lengthy discussion.

RALF HANKS, M.D., Secretary.

## ST. LOUIS MEDICAL SOCIETY

### Meeting of the Council, October 13, 1930

The meeting of the Council was called to order at 8:20 p. m. by the president, Dr. Vilray P. Blair.

The report of the membership committee was read by Dr. H. G. Lund and on motion of Dr. C. F. Pfingsten, seconded by Dr. C. A. Vosburgh, and carried, the following applicants were elected: *Library members:* Drs. James J. Donahue, East St. Louis, Ill., and A. P. Erich Schulz, St. Charles, Mo. *Corresponding members:* Dr. Arthur G. Davis, Senath, Mo.

On motion of Dr. C. F. Pfingsten, seconded by Dr. F. J. V. Krebs, and carried, the following applicants were voted upon collectively and elected: *Junior members:* Drs. J. Ted Jean, 410 Metropolitan Bldg.; Wm. F. McNamee, City Sanitarium; John J. Ryan, City Sanitarium; Oliver E. Tjoflat, City Sanitarium.

The report of the hospital committee pertaining to a convention of the American Hospital Association was read by Dr. F. C. Pernoud. On motion of Dr. H. Unterberg, seconded by Dr. F. J. V. Krebs, the report was received and the secretary was instructed to notify the St. Louis Convention and Publicity Bureau of the action of the hospital committee.

Attention was called to the death of Dr. Harry McCrindell Johnson, a former active member and later a corresponding member of the Society, whose funeral was held at San Antonio, Texas, September 28. On motion, seconded and carried, the necrology committee was instructed to prepare an obituary for publication in the *Bulletin*.

Councilors present: Drs. V. P. Blair, Lee Dorsett, John Green, John Hardesty, Roland Kieffer, W. C. G. Kirchner, F. J. V. Krebs, Harry M. Moore, C. F. Pfingsten, H. Unterberg, C. A. Vosburgh, and H. S. Langsdorf.

Councilors absent: Drs. C. H. Neilson and C. H. Shutt.

Visitors present: Drs. A. B. Day, H. C. Herick, F. C. E. Kuhlmann, H. G. Lund, G. H. Mathae, F. G. Pernoud, and E. J. Schisler, and Mr. Elmer Bartelsmeyer.

### Meeting of November 12, 1930

The meeting was called to order at 8:20 p. m. by the president, Dr. Vilray P. Blair.

The report of the membership committee was read by Dr. Robert Mueller and on motion, seconded and carried, the following applicants were voted on collectively and elected to membership: *Active:* Eber Simpson, 3729 Gravois Ave. *Junior:* L. Vincent Gorrilla, 900 Carleton Bldg.; Belmont B. Gummels, 5633 Page Blvd.; Walter R. Jordan,

Chippewa and California Aves.; Carl J. Reis, Beaumont Medical Bldg. *Corresponding:* John E. Skaff, 450 Sutter St., San Francisco.

Mr. Frank Cavanagh, publisher of the *Bulletin*, was extended the privilege of the floor and spoke concerning the advertising in the *Bulletin*. The bulletin committee was instructed to confer with Mr. Cavanagh to determine ways and means of increasing the advertising.

The following applications for active membership by transfer were read for the second time and on motion of Dr. John Green, seconded by Dr. F. J. V. Krebs, and carried, the applicants were elected: Louis J. Birsner, 1232 Missouri Building (St. Clair County, Illinois); David M. Cowgill, 2221 Locust St. (Kay County, Oklahoma); B. Y. Glassberg, Metropolitan Building (St. Louis County, Missouri); T. Joseph Toner, 3819 Meramec Street (Kenosha County, Wisconsin); W. E. Williamson, 911 Arcade Building, Crane Upton and Reagan Counties (Texas).

On motion of Dr. John Green, seconded by Dr. C. H. Neilson, an invitation was extended to the Southern Medical Association to hold its 1931 meeting in St. Louis. Dr. McKim Marriott was requested to deliver the invitation to the Southern Medical Association.

Mr. Elmer Bartelsmeyer, executive secretary, informed the Council that he has been commissioned a notary public and will be glad to add this service to his other duties.

Councilors present: Drs. V. P. Blair, John Green, John Hardesty, W. C. G. Kirchner, H. S. Langsdorf, F. J. V. Krebs, C. H. Neilson and C. H. Shutt.

Councilors absent: Drs. Lee Dorsett, Roland Kieffer, Harry M. Moore, C. F. Pfingsten, H. Unterberg and C. A. Vosburgh.

Visitors present: Drs. Paul S. Lowenstein, L. H. Burlingham, Jerome E. Cook, C. E. Hyndman, Robert Mueller and F. C. E. Kuhlmann, Mr. Frank Cavanagh and Mr. Elmer Bartelsmeyer.

### Meeting of the General Society, November 4, 1930

The meeting was called to order at 8:40 p. m. by Dr. Amand Ravold.

The following scientific program was given:

"Cesarean Section; Review of Cases in St. Louis Maternity Hospital in Last Three Years," Dr. Otto H. Schwarz.

"Culdesac Hernia as a Complication of Uterine Prolapse," illustrated with lantern slides, Dr. H. S. Crossen.

"Further Development in the Treatment of Toxemia of Pregnancy," illustrated with lantern slides, Dr. W. J. Dieckmann.

"Diagnostic Value of Iodized Oil in Sterility," illustrated with lantern slides, Dr. Q. U. Newell.

"Causes of Scanty Menstruation and Amenorrhea," Dr. C. D. O'Keefe.

"Management of Breech Delivery," Dr. Richard Paddock.

"Treatment of Two Types of Intractable Vaginitis," Dr. R. J. Crossen.

Discussion by Drs. George Gellhorn, G. D. Royston, William Kerwin, W. C. Stude; Drs. Schwarz, Newell and Paddock, in closing.

Attendance 266.

### Special Meeting, November 7, 1930

The special meeting for nomination of officers for 1931 was called to order at 8:30 p. m. by the president, Dr. Vilray P. Blair.

The nominations follow:

For president, Dr. Charles E. Hyndman, nominated by Dr. Ralph L. Thompson.

For first vice president, Dr. Joseph C. Pedcn, nominated by Dr. Emil Burst.

For second vice president, Dr. A. R. Shreffler, nominated by Dr. William E. Leighton.

For secretary, Dr. Alvin H. Diehr, nominated by Dr. Martin Van Raalte.

For councilors: Drs. Vilray P. Blair, Sinclair Lutton, Herbert S. Langsdorf, Robert C. McElvain, William H. Vogt, I. H. Boemer, Major G. Scelig, Howard H. Bell.

For delegates to the State Medical Association meeting: Drs. Vilray P. Blair, Charles E. Hyndman, J. Albert Key, H. S. Langsdorf, Roland S. Kieffer, A. R. Shreffler, Wm. E. Leighton, G. H. Mathae, F. C. E. Kuhlmann, Ralph L. Thompson, Emmy M. Ross, Frank J. V. Krebs, C. A. Vosburgh, Charles H. Neilson, Frank D. Gorham, Emil A. Burst, C. F. Pfingsten, L. R. Sante, T. Wistar White, W. T. Coughlin.

Attendance 30.

#### Meeting of November 11, 1930

The meeting was called to order at 8:45 p. m. by the president, Dr. Vilray P. Blair.

The following program was rendered:

"Invocation," Reverend H. H. Marsden, Chaplain of Boutwell Post Number 136, American Legion.

"Star Spangled Banner," Mrs. Flora M. Reucker, soprano, Second Baptist Church, Mr. Arthur Lieber, accompanist.

"Armistice Day and After," Congressman Cleveland A. Newton.

"The American Legion," Dr. Amand Ravold.

Selection—"There Is No Death," Mrs. Reucker, accompanied by Mr. Lieber.

"The Signing of the Armistice in the Forest of Compiegne on November 11, 1918," illustrated with lantern slides, Lieutenant Edward O. Harrs, Signal Reserve.

Exhibition by the Greater St. Louis Drum and Bugle Corps of the American Legion.

Recitation of the World War memorial poem "In Flanders Field," Mr. John A. Snoddy.

Attendance 272.

#### Meeting of November 18, 1930

The meeting was called to order at 8:35 p. m. by the president, Dr. Vilray P. Blair.

Two cases of tumor of the fourth ventricle were presented, one by Dr. Leland B. Alford, the other by Dr. Ralph L. Cook.

The cases were discussed by Drs. W. T. Coughlin and W. D. Collier.

The following scientific program was given:

"Surgical Therapeutics of the Heart," illustrated with lantern slides, Dr. William T. Coughlin.

Discussion by Drs. A. H. Hamel, W. C. G. Kirchner, Louis Rasseur; Dr. Coughlin, in closing.

"Treatment of Hypertension," Dr. Julius Jensen.

Discussion by Drs. A. E. Strauss, E. J. Schisler; Dr. Jensen, in closing.

Attendance 214.

#### Meeting of December 9, 1930

The meeting was called to order at 8:40 p. m. by the president, Dr. Vilray P. Blair.

The following scientific program was given:

"The Medical Aspects of Cancer," Dr. David P. Barr.

Dr. Francis Carter Wood, director of the Crockers Institute for Cancer Research, Columbia University, New York, was introduced by Dr. F. J. Taussig. Dr. Wood delivered an address entitled,

"A Survey of the Recent Trends in Experimental and Practical Cancer Therapy."

Discussion by Drs. Ellis Fischel, M. F. Engman; Dr. Wood, in closing.

Attendance 184.

HERBERT S. LANGSDORF, M.D., Secretary.

#### ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met at a banquet at Van Horn's Farm, December 10, 1930.

Dr. and Mrs. W. F. O'Malley, Webster Groves, were presented with a beautiful silver serving tray by Dr. F. C. E. Kuhlmann, in behalf of the Society, as a token of appreciation of their generosity in giving over their home to Society meetings.

Dr. Alonzo G. Hobbs, St. Louis, was elected a member by transfer from the St. Louis Medical Society.

The following officers were elected for 1931: President, Dr. R. B. Denny, Creve Coeur (re-elected); vice president, Dr. P. M. Brossard, Maplewood; secretary-treasurer, Dr. Fenton J. Petersen, Richmond Heights; delegates, Drs. C. P. Dyer, Webster Groves; Dr. Otto W. Koch, Clayton.

FENTON J. PETERSEN, M.D., Secretary.

### WOMAN'S AUXILIARY

#### OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.

President-Elect, Mrs. U. J. Busiek, Springfield.

1st Vice President, Mrs. C. M. Sneed, Columbia.

2nd Vice President, Mrs. H. B. Goodrich, Hannibal.

3rd Vice President, Mrs. R. S. Kieffer, St. Louis.

4th Vice President, Mrs. W. L. Kenney, St. Joseph.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

#### ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. C. C. Cummings, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Linn.....	Mrs. Ola Putman, Marceline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

#### JOINT MEETING OF BATES, CASS, AND VERNON-CEDAR COUNTY AUXILIARIES

The Bates, Cass, and Vernon-Cedar County auxiliaries met in joint session at Butler, December 11, 1930. Dinner was served in the Christian Church by the ladies of the church. A short musical program was enjoyed.

It was our good fortune to have with us our state president, Mrs. A. W. McAlester, Kansas City, whose message was very inspiring.



Dr. Frank I. Ridge, Kansas City, gave a talk on "The Purpose of the Auxiliary."

We feel that these two guests helped make the meeting a splendid success.

Mrs. C. W. LUTER, President,  
Bates County Auxiliary.

## MISCELLANY

### SPEECH BY

DR. GEORGE WASHINGTON VINYARD\*

JACKSON, MO.

We all enjoyed Dr. Blair's lecture. It shows that he was inspired by the old, old slogan "There is no excellence without great labor." Dr. Blair did not attain his lofty status in his chosen profession on flowery beds of ease; he evidently burned the midnight oil. His superior skill and wonderful achievements in his specialty were doubtless due to industry, patience and perseverance. As for myself, I feel obligated to Dr. Blair for this entertaining and instructive lecture. I thank him for it.

We have the privilege as well as the pleasure on this occasion of entertaining and honoring one of America's foremost surgeons—in fact, a physician and surgeon with an international reputation. We should also appreciate the fact that we have been distinctly honored by him who must cover two hundred and sixty five miles of travel in order to favor us with this splendid lecture.

Dr. Blair is a patriotic American citizen who served his people and his country with commendable distinction, both in time of peace and in time of war. During the bloodiest war known to the annals of history he crossed the ocean to succor the torn and lacerated American soldiers who were shedding their blood for the defense of our homes and our firesides and to make the world safe for democracy. We all know that those who crossed the water to engage in that terrible conflict enjoyed no picnic. As for myself, I am ready to take off my hat to the humblest one among them—in fact, to every mother's son of them.

The true physician respects his calling. He loves the study of the Divine Art of Medicine and Surgery.

His mind is open and receptive to advanced medical truths.

He considers all things well and holds fast to that which is good.

He serves his clientele with unselfish devotion and often without money and without price.

At the finish the brightest gem in his character will be the good he did for afflicted humanity.

That will stand forth more preeminently than the paltry dollars he might leave for his posterity.

In the realm of medical science all theories, doctrines and new discoveries must pass through the crucible of clinical investigation and either stand or fall.

The fallacious doctrines of Hahnemann were a distinct benefit to the regular profession.

The fallacy of the "tricillionth" dilution of a drug was convincing by its very absurdity.

The homeopaths taught us the folly of extravagant dosage. They demonstrated beyond cavil the latent power of *vis medicatrix naturae*.

The *similia similibus curantur*, like other "pathies" and fads that becloud the medical horizon from time to time, had its little day and is now but an evanescent dream.

Dr. Linton, a distinguished medical teacher of St. Louis in the early days, illustrated the *similia similibus curantur*—like cures like—with the following poem:

There was a man in our town,  
And he was wondrous wise;  
He jumped into a bramble bush  
And scratched out both his eyes.  
When he found his eyes were out,  
With all his might and main  
He jumped into the bramble bush  
And scratched them in again.

But we must admit that the regulars were a bit too liberal and reckless in their dosage. Sixty years ago 15 or 20 grains of calomel was an ordinary dose. Ten grains of calomel and 10 grains of jalap was a customary dose for a purge; sometimes one or two grains of ipecac or a fractional grain of tartar emetic was added to make the prescription more efficient and perhaps to impress the patient with the extreme gravity of his illness.

Our old family physician of ante-bellum days occasionally prescribed what he called "Rushing Powders," consisting of  $\frac{1}{4}$  grain tartar emetic, 15 grains powdered ipecac and 25 grains calomel. I had the misfortune to take one of those rushing powders myself. When I come to die, if I feel like I did a few minutes after swallowing that dose then death will have no terrors for me. That powder produced a riotous rebellion in my abdominal viscera and everything in there seemed determined to escape with undue speed and by any available route.

Some 45 years ago Dr. Parkhurst, of Farmington, Missouri, detailed the history of a case of gallstone colic he treated with large doses of calomel. The patient was an elderly female who was not financially equipped to enjoy the luxury of a cholecystotomy so she had to depend upon the *vis medicatrix naturae* and what assistance her local physician could render her. After quieting her pain he left a few doses of calomel to be taken, one powder every 4 hours. Two or three weeks later he called on the patient and found her in fine fettle. She presented him with a small salt-mouthed bottle about half full of brownish chocolate colored calculi, irregular in shape but of rather uniform size, some of them quadrangular and faceted, and said, "Doc, after I began taking your powders these things began passing from me and I saved them for you." The doctor was highly pleased with the outcome of the case. Some of the powders were left. He thought they looked rather large, so he took one of them to his drug store and weighed it and it weighed 60 grains!

The old time doctor accomplished good without knowing just how he did it. He stimulated the emunctories and flushed out the anatomical sewers, though he possessed scant knowledge concerning the different types of toxemia. He was after what he called "Pecant Humors."

To him man was somewhat of a puzzle and woman was very much of a mystery. Now everything is explained. Man is made up of H<sub>2</sub>O, more or less salt, considerable gas and some incidental

\* Delivered to the medical staff of St. Francis Hospital and invited guests at Cape Girardeau, Mo., March 15, 1930, upon the occasion of the visit of Dr. Vilray Papin Blair, St. Louis, who gave an address entitled "Plastic Surgery and Repair."

substances. *Woman* consists of a flock of fibroids, a couple of pus tubes and a few bundles of obfuscated nerves worn to a frazzle.

In olden times people used to be actually sick with lung fever, "rheumatiz" and malarial. Now-a-days they have brain storms, neurasthenia, auto-intoxication, radioitis and crooked whiskey.

The vermiform appendix has become an exceedingly offensive segment of the human anatomy and is no insignificant source of income for the modern surgeon.

The "Old Timer" used to give them calomel, jalap and peruvian bark.

Now the modern doctor squirts them full of extract of bugs, "hoss" juice and other fantastic serums.

The "Old Timer" had the experience of guessing at the malady and gambling as to how near he would come to a correct diagnosis. Now we spend hours messing around with test tubes, stethoscopes, microscopes, fluoroscopes, and X-rays and when we have proven the identity of the malady then we call in "Old Doctor Hygiene" and proceed to assist him with hand-me-down, ready-made prescriptions exploited by some enterprising commercial manufacturing drug house.

I have heard it said there are two kinds of fools—the fool who knows he is a fool and is correspondingly careful; and the fool who is a fool and doesn't know it. The latter is as dangerous in the practice of medicine and surgery as a blind giant.

In the early days Southeast Missouri was rather a discredited territory. The outside world displayed more or less contempt for this section of the State. The people were charged with being web-footed and lineal descendants of the bullfrog. The population was noted for fat lumbricoids and hypertrophied spleens the size of a hound pup, known in common parlance as "Ager Cakes." In those days Southeast Missouri was a veritable paradise for the hunter and the fisherman. Wild ducks, wild geese, deer, bears, wolves and other wild game were abundant and sportsmen occasionally flocked in. A departing guest announced that he would return again soon to enjoy the fine fishing here. His amiable landlady said to him, "Doc, when you come again let us know beforehand and we will give the children castor oil and you will have plenty of bait without digging for it."

As a typical illustration of the low estate in which this section was held I will repeat another fable. Two missionaries became lost in the swamps of Southeast Missouri. They wandered into a small "deadening." (An area on which the trees have been deadened by girdling preparatory to clearing.) They saw a dilapidated cabin in one corner of this deadening. They approached and knocked on the door. A jaundiced, cadaverous looking woman opened the door, pushing her numerous progeny back on each side of her and inquired what they wanted. One missionary said, "Madam, are there any Christians around here?" She replied, "I don't know what you want, but the old man killed some kind of a varmint last night. Its hide is down yander in the yard. You can go and see if that is what you are looking for." One missionary said, "Madam, you need light." She said, "I told the old man to cut a winder in this house but he has never done it yet." The missionaries were shocked and remarked, "This woman is poor, poor indeed! Poor mentally, poor physically and poor spiritually." When

she heard that remark she bristled up and said, "Poor! I say poor! You'd be poor too if you had the diarrhea like I have for six months and suckled two kids." This is a fair sample of the slander that has been plastered upon the fair escutcheon of good old Southeast Missouri.

But now, I am happy to say, Southeast Missouri has come into her own. Her swamps have been drained and thousands of acres of tillable land have been reclaimed. She has emerged from the shades of ignorance and superstition. Her territory is dotted with school houses—district schools, high schools and private schools. This city is the home of a State Teachers College, supported by the State for the training of teachers to teach the young idea how to shoot.

Saint Vincent's College is located here, one of the oldest educational institutions in this section of the State, in which many of our distinguished citizens obtained their education. Hospitals have sprung up for the care of the sick and the afflicted, St. Francis Hospital being a pioneer. Many years ago (1882) when St. Francis Hospital opened its doors for service the medical faculty of this vicinity did not fully appreciate hospital facilities. From that small beginning this splendid institution has grown and is a credit to our city and a most efficient public servant.

Southeast Missouri is today a vast area of alluvial farms unsurpassed in any other part of the State. Any crop can be successfully grown here that is grown in this latitude. She produces that valuable staple, cotton, that cannot be successfully grown in other parts of the State. Senator Ely informed me that there are only three counties in the United States that can grow more cotton to the acre than is grown in Dunklin County. I notice in the press that experts estimate that the farmers of Southeast Missouri will receive for this year's cotton crop between \$15,000,000 and \$20,000,000. You will observe that Southeast Missouri produces the mercerized silk that adorns the shapely limbs of her lovely women and also the bandy shanks of her gay Lotharios. When you talk about better land than Southeast Missouri every potato winks its eye, every cabbage shakes its head, every beet gets red in the face, every oat field is shocked, the onions get stronger, the rye strokes its beard, the corn pricks up its ears and the cotton hollers for more gin—and so does the planter.

The physicians of Southeast Missouri compare favorably with those of other parts of the State. The same can be said of our doctors of dental surgery. Southeast Missouri has produced some very competent and successful surgeons, also specialists in ophthalmology, laryngology and otology that are doing most creditable work.

In the earliest days the aboriginal swamp doctor was not such an ignoramus as he was painted. He was capable, self-reliant and ingenious. Away back yonder in the eighties, when Grover Cleveland was president of the United States and John S. Marmaduke was governor of this State, a law existed requiring reports of births. A shifty swamp doctor found himself out of blanks so he wrote his report in long hand, and when he came to the sex of the child he wrote in bold script:

Its a man child; its name is McGrew,

Its dad's a Democrat tried and true,

It raised up its head and said "I'm a Puke,"

Then yelled for Grover Cleveland and Old Marmaduke.



## TRUTH ABOUT MEDICINES

### PROPAGANDA FOR REFORM

**THE MARMOLA QUACKERY AGAIN.**—The United States Circuit Court of Appeals has handed down a decision in the "Marmola" case which vacates the "Cease and Desist Order" of the Federal Trade Commission. Marmola is a quack obesity cure of the thyroid type. It is exploited by one Edward D. Hayes who does business at the present time under the trade name "Raladam Company." Hayes has been for a quarter of a century in disreputable medical businesses. In February, 1928, the Federal Trade Commission issued a complaint against the Raladam Company and in April, 1929, issued an order to the Raladam Company to cease and desist from directly or indirectly representing that Marmola is a scientific or accurate method of treating obesity, or that it was made from a scientific formula, or that it was the result of scientific research, or that it could be taken without the advice or direction of a physician as a safe and harmless remedy, or that it could be taken without harmful results without the advice and direction of medical authority. Now comes the United States Circuit Court of Appeals and vacates the Commission's order. After calling attention to the fact (1) that the ministrations of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Deo Dennis' Eucalyptus Ointment (Deo Corporation), consisting essentially of a wax base, with small amounts of petrolatum and fat, containing volatile oils, including eucalyptus and sassafras oil, camphor and menthol. Good Samaritan Ointment (Good Samaritan Ointment Co.), consisting essentially of a wax and fatty acid base, with oil of wintergreen, lead carbonate and oil of sassafras. Albolatum (A. J. Fajardo), consisting of white petrolatum. Asper-Lax (Asper-Lax, Inc.) tablets each containing 4.3 grains of aspirin and about ½ grain of phenolphthalein. Over Night Cold Tablets (Dow Drug Co.) containing acetanilide, caffeine, quinine compound, a laxative plant drug and baking soda. Creosotono (G. J. Fajardo), consisting essentially of creosote, quinine, strychnine and phosphates. Smi-Lax (Kannapolis Drug Co.), containing alcohol 17.7 per cent, ammonium salicylate, methenamine, potassium salts, extract of a laxative plant drug and a trace of alkaloids. Sniff (The Paris American Corporation), consisting essentially of mineral oil, containing menthol, camphor and turpentine. Savodine (The Savodine Co.), consisting essentially of an oil base containing boric acid and volatile oils, including oil of wintergreen and menthol. Breaks-It (Gibson-Howell Co.), a tablet containing salol, sodium salicylate, baking soda and a small amount of alkaloids. (Jour. A. M. A., August 9, 1930, p. 430.)

**SYNTHETIC THYROXINE.**—The A. M. A. Chemical Laboratory recalls that Kendall isolated thyroxine from the thyroid gland and that he considered it to have a constitution which later was found to require revision and that in the U. S. Pharmacopeia thyroxine is defined as an active principle obtained from the thyroid gland. Attention is called to the fact that while spelled in the Pharmacopeia without a final "e" the substance is basic in character and must be spelled thyroxine. Three years ago, Harington and his coworkers arrived at the conclusion that the Kendall formula was not correct. Later this conclusion was confirmed by the prepara-

tion of thyroxine synthetically. Synthetic thyroxine has been prepared by pharmaceutical laboratories abroad and one brand, Synthetic Thyroxine—Roche, has been submitted to the Council on Pharmacy and Chemistry. The Laboratory found this brand to comply with the standards which it had elaborated and the Council admitted this product to New and Nonofficial Remedies for the reason that the pharmacopeial definition does not apply to the synthetic substance. (Jour. A. M. A., August 16, 1930, p. 484.)

**MORE MISBRANDED NOSTRUMS.**—The following products have been the subject of prosecution by the Food, Drug and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Knox Cold Tablets (L. J. Barnett Company), consisting essentially of acetanilide, quinine salt, with some powdered crude drugs, including a laxative, resins, traces of aloin, red pepper and some mydriatic alkaloids. Nuremedy (The Central Laboratories, Inc.) each tablet containing 1.4 grains of phenacetine and nearly 2½ grains of aspirin. Bu-Ku-Jin Elixir (The Tonkin Distributing Company), consisting essentially of alcohol, sugar and water, with traces of flavoring oils and some plant drug extracts, including buchu. R. P. Liniment (The Alveo Chemical Company, Inc.), consisting essentially of volatile oil (97 per cent), including oil of pine. Nue-Ovo (Research Laboratories, Inc.) consisting of a dark brown watery solution of extracts of plant drugs including a laxative drug, a bitter drug, resin, saponin and caffeine, colored with caramel and preserved with sodium benzoate. Pneumatica (The Charles F. Polk Company), consisting essentially of petrolatum including red pepper, oil of wintergreen, carbolic acid, camphor and some mydriatic alkaloids. Hi-Grade Kold Breakers (The Continental Drug Company) containing essentially 1 grain of acetanilide to each tablet, red pepper, extracts of laxative plant drugs including podophyllin, a small amount of iron salts and sulphates. (Jour. A. M. A., August 30, 1930, p. 680.)

**THE TESTIMONIAL INDUSTRY.**—Two or three years ago certain members of the medical profession were asked to answer a question that they were wholly incompetent to answer. The question was whether, in their judgment, the "toasting" process alleged to be applied to the tobacco in "Lucky Strike Cigarettes" was likely to free the cigarettes from irritation to the throat. In addition to the questionnaire, the doctors received a carton of 100 cigarettes. The Lucky Strike people now claim that over 18,000 physicians answered the question given in the affirmative. Today physicians in the south and possibly other sections of the country are being circularized by the concern which exploits "Ironized Yeast." "Ironized Yeast" belongs to the get-plump-quick class of nostrums. It is a mixture of yeast and iron. It also contains phenolphthalein. The circular letter that the Ironized Yeast Company is sending out to physicians starts out with this rather crude offer: "A Gift Worth \$10 for You for Just a Little Information." The physicians are then asked to answer two questions, the answers evidently to be used in the exploitation of Ironized Yeast. For the answers written on his own stationery, the physician is offered "a luxurious flacon of exquisite French perfume—*Tout Paris de Guimet* regularly sold at \$10." Will the medical profession bite? (Jour. A. M. A., August 30, 1930, p. 679.)

## BOOK REVIEWS

**APHASIA IN CHILDREN.** By Alex. W. G. Ewing, M.A., Ph.D. With an Introduction by E. D. Adrian, M.D., F.R.C.P., F.R.S., Fellow and Lecturer of Trinity College, Cambridge. Oxford University Press, American Branch, 114 Fifth Avenue, New York City. 1930. Price \$3.50.

Dr. Ewing has investigated cases of children who fail to sit up in infancy and who have a disturbance of the complex machinery for thought and expression. In an analysis of many cases he discovered a state of partial deafness which prevents the spoken word from being understood because of an inaudibility for the higher tones. He found this interesting result by testing the range of hearing in children unable either to speak or to understand speech. He has discovered a method by which the hearing acuity can be tested. Otologists will be interested in the method while the discussion of the central mechanism of speech will be of interest to all. The book deals especially with a variety of speech defects in young children the cause of which is now known so that such children can be taught, with some limitations, to speak as well as to hear.

The author found in certain cases an incomplete or arrested development of the cerebral central mechanisms. There were such marked differences of this type from the "aphasia" due to injuries of the brain that he has adopted a new term, "linguistic retardation."

Ewing speaks of the habit of the born deaf child to slur his feet in walking, while the partial deaf child does not. The latter shows quickness of head, eye and often of bodily movement, described as "bird-wittedness."

This book deals with the nature of aphasia, how to test it, and the results from treatment. It is a splendid discussion of the subject and the practitioner will find the book useful in his practice.

F. C. N.

**A PRIMER FOR DIABETIC PATIENTS.** A Brief Outline of the Treatment of Diabetes with Diet and Insulin, Including Directions and Charts for the Use of Physicians in Planning Diet Prescriptions. By Russell M. Wilder, M.D., Professor and Chairman of the Department of Medicine, University of Chicago Clinics, etc. Fourth edition, revised. Philadelphia and London: W. B. Saunders Company. 1930. Price \$1.50.

An excellent addition to the already large number of patients' manuals on diabetes. The author has stressed the ordinary tests which the patient performs daily as a check on his progress. The reasons underlying the diet are stressed and the manner of calculation is pointed out. The reviewer does not, as the author does, allow his patients bread except in exceptional instances because patients who are allowed a small quantity of this food generally overstep the allowance with resultant glycosuria. He does allow more protein than the author recommends because it has never been proved that even a gram of protein per kilogram is injurious and more particularly because with a larger protein allowance the patient's appetite is more easily appeased. If the book is intended as a manual for physicians as well as patients it would seem advisable to include a chapter on the diagnosis of diabetes because this reviewer has found that many patients are being

treated for this disease merely on the basis of glycosuria.

The value of the book is considerably enhanced by the inclusion of some seventy recipes for diabetic patients. It should be a welcome addition to the library of every diabetic who is anxious to understand the rationale of his diet and more particularly of those who are anxious to avoid a certain monotony in diet by the substitution of foods of equivalent chemical composition. B. Y. G.

**ELEMENTARY ZOOLOGY.** For Medical Students. By L. A. Borradaile, Sc.D., Fellow and Tutor of Selwyn College, Cambridge, and Lecturer in Zoology in the University. Second edition. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1930.

Intended as a guide for students preparing for their first medical examinations under the English system, this book covers the morphology of the animals ordinarily used in premedical zoology in this country. A discussion of the physiology of the organisms described, although not entirely omitted, is reduced to a minimum, practically nothing is introduced concerning the study of heredity and organic evolution is treated briefly. There is a chapter on the embryology of representative chordates and a table of classification of the animal kingdom.

Aside from the expected differences in terminology, which might prove confusing to the elementary student, the book could be advantageously used for morphological references to the type laboratory forms in zoology. It is clearly written and a marvel of compactness. M. J. G.

**MINOR SURGERY.** By Arthur E. Hertzler, M.D., Chief Surgeon, Halstead Hospital, and Victor E. Chesky, M.D., Chief Resident Surgeon, Halstead Hospital. Second edition, with 475 illustrations. St. Louis: The C. V. Mosby Company. 1930. Price \$10.00.

In reading this book one is impressed first with the unusual practicability of its considerations in the field of minor surgery. Etiology and pathology are scarcely mentioned in the text, although the diagnosis and treatment in each instance presupposes a knowledge of both etiology and pathology. Added to this, the author's vast experience, from which all material in the text was taken, makes the volume particularly adapted to use in university surgical outpatient departments and particularly useful to medical students and interns in clarifying thought and action.

The text is divided according to regional anatomy. The affections of each region are concisely described and then the diagnosis and treatment discussed. No portion of the text violates its purpose which, as stated in the preface, is to help the dispensary student to understand what he sees in the outpatient clinic. Only those things that have been proved in practice are included with wholly a practical end in view. The only considerations which trespass the realm of major surgery are those of the diagnosis of certain affections. This enhances the value of the book for such considerations are a part of any surgical outpatient service though the treatment may belong to the main operating room.

The book is thoroughly illustrated, inclusive in its text, complete in its purpose, practical in its teaching, and representative of a large experience in the field of minor surgery as seen in the surgical outpatient departments of our medical schools.

R. W. S.



**ARTERIAL HYPERTENSION.** By Edward J. Stieglitz, M.S., M.D., Assistant Clinical Professor of Medicine, Rush Medical College, University of Chicago. Foreword by Rollin T. Woodyatt, M.D., Clinical Professor of Medicine, Rush Medical College, University of Chicago, etc. With 21 illustrations. New York: Paul B. Hoeber, Inc. 1930. Price \$5.50.

This monograph is a very interesting survey of arterial hypertension giving special attention to recent research in this field to which the author has himself contributed observations of sound worth.

The subject matter is logically arranged, the illustrations are telling and the bibliography includes the most important works on this subject. The bibliography is only a selection, but since it contains more than 1100 references that limitation emphasizes the vast number of articles that have been written on hypertension.

The book is a distinct contribution to the subject and can be read with profit by every physician. R. H. M.

**INJURIES TO JOINTS.** By Sir Robert Jones, Bart., K.B.E., C.B., Ch.M. (Liverpool), F.R.C.S. (England, Ireland, and Edinburgh), F.A.C.S. (U. S. A.), Emeritus President, British Orthopaedic Association; etc. Third edition. Oxford University Press, American Branch, 35 West 32nd Street, New York. Price \$2.00.

This book should be in the library of every physician who does any traumatic surgery. It contains more valuable information on the subject than any book I have ever read regardless of size. T. G. O.

**HISTOLOGY FOR MEDICAL STUDENTS.** By H. Hart-ridge, M.A., M.D., Sc.D., M.R.C.P., F.R.S., Professor of Physiology, University of London, at St. Bartholomew's Medical College, and F. Haynes, M.A., Demonstrator of Histology, University of London, at St. Bartholomew's Medical College. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1930.

This book is an attempt to meet an apparent trend toward shorter textbooks, but the brevity of the descriptive matter is rather satisfactorily compensated for by numerous illustrations quite outstanding in character. These are in color made for the most part from hematoxylin and eosin stained preparations. Eight drawings are given to a page and they are arranged on the right-hand page opposite the descriptive matter. The drawings in the main are excellent and bring out the most important structures. It is a valuable book for reference entirely apart from its possible use as a medical student textbook. H. H. C.

**A TEXTBOOK OF HISTOLOGY.** By Alexander A. Maximow, Late Professor of Anatomy, University of Chicago. Completed and Edited by William Bloom, Assistant Professor of Anatomy, University of Chicago. 833 pages with 604 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1930. Price, cloth \$9.00.

With the untimely death of Maximow two years ago this volume was unfinished except for the sections on epithelium, special sense organs, and the female and male generative tracts. Bloom tells us in the preface that the sections on blood, connective tissue, gastro-intestinal tract, blood vascular and lymphatic system, the spleen, integuments and the mammary glands, were only available in rough

manuscript. Despite this handicap it is somewhat difficult at times to recognize where Maximow stopped and Bloom began. The text is remarkably clear, well and simply written, and reading it is anything but drudgery. The illustrations are numerous, well chosen and of excellent quality although a great many are borrowed from other publications. With our present refined methods of photomicrography it is suggested that photomicrographs could be used to advantage in certain places in another edition.

The book is not overburdened with embryology only such allusions as seem essential being included. In the chapter on thyroid, Rienhoff's wax model method of building the follicle has been accepted. This is one of the many points illustrating the up-to-date character of the entire treatise.

One recognizes that the authors are finished anatomists which they are known to be and that they have written a book extremely valuable to the pathologist as well as to the student of normal structures. It is an excellent textbook. F. C. H.

**DISEASES OF THE SKIN. A Text-Book for Practitioners and Students.** By George Clinton Andrews, A.B., M.D., Associate Professor of Dermatology, College of Physicians and Surgeons, Columbia University; Consulting Dermatologist and Syphilologist to Tarrytown Hospital; to St. John's Hospital, Yonkers; to Grassland's Hospital; and to the Broad Street Hospital, New York City. 1091 pages with 988 illustrations. Philadelphia and London: W. B. Saunders Company. 1930. Price, cloth \$12.00 net.

Apparently, the day of the pocket edition, pictureless textbook on skin and allied conditions, as devoid of references as it is of originality and literary style, is a thing of the past. For this blessing the specialist as well as the general practitioner and the student are grateful.

In less than eleven hundred pages Andrews presents an eminently practical and complete textbook and he has done it in a way that is as modest as it is capable. The first sentence of his preface, "As a ship that is built for service leaves the builders' hands to be launched on a career of usefulness with but a few words, so I send out this book in the hope that it will be of service," reveals the foundation on which he has reared his structure.

The thirty-six chapters vary from sixteen pages of well-packed information on the anatomy and physiology of the skin, through an admirably presented section on principles of treatment, a well-balanced discussion of roentgen rays, Grenz rays, radium therapy, ultraviolet light, and surgical diathermy, and so to the various dermatoses.

His classification of the benign and malignant neoplasms of the skin is both original and convincing. The lymphoblastomas are given a chapter to themselves.

Probably the strongest chapter in the book, as one might expect from a man of Dr. Andrews' training, is the one on radiotherapy. To the reviewer, however, the most interesting section is that which deals with syphilis and particularly with congenital syphilis. These chapters are indeed most admirably done.

The illustrations, many from the photographic collections of George Miller MacKee, Parounagian, the Shellmire, Cannon, Maloney, and a few from the old Stelwagon text, are excellent. The paper might well be of a better grade. In this new volume Andrews gives us a book which is not only a credit to the younger generation but to the entire field of American dermatology as well. R. L. S.

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### SYMPATHETIC GANGLIONECTOMY FOR ARTHRITIS DEFORMANS\*

W. T. COUGHLIN, M.D.

ST. LOUIS

Adson and Rowntree, in January, 1930, reported the case of a young woman suffering from arthritis on whom Adson had performed the operation of removal of the sympathetic ganglia some three years previously. The patient was so much improved that she was able to go back to work and had then remained well for more than two years.

Hunter and Royle, in 1924, reported having secured much improvement in various forms of spastic paralysis by severing the connections between the sympathetic and spinal nerve systems of the limbs involved.

It has long been known that severance of the sympathetic fibers is followed by dilatation of the arterioles and capillaries in the area supplied by such fibers, with increased warmth and cessation of sweating.

It is believed that the nerve fibers supplying the muscular coats of the blood vessels have their origin in the spinal cord segments corresponding to the segments from which the vessels are derived, and that these leave the cord and join the sympathetic chain as white rami communicantes. It is further believed that these rami, reinforced by purely sympathetic fibers (gray rami), again join the spinal nerves and run in the sheaths of these to the points at which they join the nervous tunic of the artery (vessel). These nerves do not all join the arterial sheath at one point but at many or various points throughout the course of the vessel so that the destruction of this nerve sheath, say at the origin of the vessel or at any point along its course, does not destroy all the sympathetic fibers going to the vessel. In order to destroy all of the impulses going to a part

it is necessary to sever the rami (1) before they join the sympathetic chain, (2) while they are in it, or (3) immediately after they leave it, that is, while the fibers are all together.

Clinicians have long remarked that many patients suffering from arthritis deformans were afflicted with cold, clammy extremities, and it was this knowledge that led Adson and Rowntree to suggest the operation of sympathetic nerve section to a patient suffering from arthritis. The patient consented and Adson removed the sympathetic chain in the lumbar region of one side. Imagine his surprise and pleasure when the patient (who did not know just what had been done, nor on which side) informed them that she felt no pain in the operated limb and when she was told what had been done, she requested that the operation be speedily performed on the other limb. Since then, the operation has been performed several times for arthritis and so far those concerned seem quite enthusiastic regarding it.

My first sympathectomy for arthritis deformans was performed at St. Mary's Hospital, St. Louis, May 8, 1929, on a patient referred by Dr. R. A. Kinsella, director of the department of medicine in St. Louis University School of Medicine. The history of the case in brief follows:

#### REPORT OF CASES

Case 1. Miss T., stenographer, aged 34, entered St. Mary's Hospital June 7, 1929. Walks with crutches. Complaints of pain and stiffness and swelling of knees, ankles, jaw, neck, elbows, wrists, and fingers for past 12 years, following septic sore throat, and getting worse. She is well built, 5 feet, 8 inches, and weighs 150 pounds. The skin of hands and feet is shiny, thin looking. Fingers and backs of hands and ankles are puffy, do not pit on pressure, and have a "doughy" feel. Fingers cannot be flexed more than 45° at any joint. The first interphalangeal joints are hyperextended, the others flexed. Wrist flexion not allowed. No ulnar deviation. Cannot use knife and fork. Much adiposity on hips, thighs and calves. Dorsum pedis puffy, no pitting. Right ankle stiff. Right knee flexible to 45°, left knee to 60°. Profuse sweating in palms, feet

\*Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



cold and clammy, skin tension less than normal. Roentgen ray showed an arthritis of all the joints. The knees show lipping of edges of articular surfaces, thinning of cartilage and roughening of the articular surface of left. The patient was told of the success reported by Adson and Rowntree (private communication) and she decided to have it tried.

Operation was performed June 8, 1929, and the right lumbar chain was removed. In addition, I performed Leriche's operation on the right common iliac, stripping its sympathetic coat entirely free. While doing this I accidentally tore off a branch (sacra media) which arose from its posterior surface a little above its middle. This necessitated complete division and ligation of the right common iliac.

At the conclusion of the operation the temperature of the feet was noted and the right was found much warmer than the left. This difference of temperature still persists but slightly less marked. The pain was relieved and the notation of June 9, 1929, says, "Allows complete movements of right knee and ankle."

This patient was presented before the St. Louis Medical Society in September, 1929, and the case reported.

She returned to St. Mary's Hospital Nov. 11, 1929, and asked to have a similar operation performed to relieve pain in her right hand, wrist and elbow.

On Nov. 21 under local anesthesia the right cervical sympathetic chain with the first two dorsal segments were removed. The pain in right shoulder and back was so severe as I passed the stripper to break the upper thoracic connections that ethylene was necessary. She made an excellent recovery.

An hour after operation the notation says, "Right cheek red and warmer than left. Right pupil constricted, slight reaction to light. Right enophthalmos. Right hand warmer and veins more distended than on left."

November 30, 1929, patient dismissed with notation, "Great improvement in right hand, fingers, wrist and elbow. Hand warm and dry."

This patient is still most enthusiastic for the operation and has sent other patients. Her only regret is that she cannot open the right eye as widely as she could before.

A remarkable fact observed in this case was the increased warmth of the right foot, even though the right common iliac artery was divided and ligated, and the increased warmth persists after a year.

Case 2. Mrs. M. H., aged 60, mother of ten children, admitted to St. Mary's Hospital July 23, 1929. A stretcher case. She complained of pain, deformity, loss of function in all joints and of cold clammy extremities. The disease began 13 years ago and she has been in bed for the last 11 years; pain is getting worse.

The condition exhibited by this patient might be said to "beggat description." Suffice it to say that the spine was ankylosed into one complete bone, curved concave anteriorly so that the patient could not lie on her back when pillows and props were removed from under head, neck and upper thorax. Elbows, wrists, fingers, knees, ankles and toes quite ankylosed with partial ankylosis of shoulders and hips. The chin almost touched the chest and could not be raised from it.

I had no hope whatever that the operation could benefit her in any way. Dr. Kinsella thought there was a possibility that her pain might be relieved. She had seen Case 1 and was anxious to try the

operation. I elected the left upper as being the easiest and performed the operation on July 25, 1929.

Under local anesthesia I opened the neck through an incision along the posterior border of the left sternomastoid and, after dividing the vertebral artery between two ligatures, I removed the cervical and upper two dorsal sympathetic segments on the left side. It was very difficult because of the fixed position of the head in flexion. She made a good recovery from the operation.

At the end of the operation one could see a great difference between the hands. The left was cyanosed, the veins distended and the skin dry and warm; the right was still pale, cold and clammy.

Many of those whom I have since operated upon have gone first to see this patient. I, myself, have not seen her since the operation but she seems to be satisfied that her condition is somewhat less painful than before.

Case 3. Miss H. W., aged 39, admitted to St. Mary's Hospital October 9, 1929. Diagnosis, arthritis deformans. A stretcher case. Began 17 years ago, cause unknown; involves all joints. Patient has been bedridden for 12 years. First came pain, then stiffness and deformity. "Needles and pins" sensation in hands and they "burn when touched."

The deformity and disability present in this case as in Case 2 were most complete. However, the skin of the extremities was not cold and clammy but dry, shiny and of about normal warmth, albeit paler than normal. Nutrition was good. The spine, as in Case 2, was ankylosed and curved forward so as to render lying flat on her back quite impossible. Her chin almost touched the sternum and the head could not be forced back. The elbows, wrists, fingers, knees and ankles are ankylosed. Shoulders and hips partially ankylosed. The roentgen ray report shows pronounced new bone formation in all the joints, "almost complete bony ankylosis."

It was explained to the patient that the most she could expect in any case was relief of pain and even that was only a probability. Nevertheless, she asked to have the operation performed. (Her people had heard of and had gone to see the other patients.) The operation was performed on October 12, 1929, for relief of the pain in the right hand and arm.

Under local anesthesia, the neck was opened by a vertical incision along the posterior border of the right sternomastoid and the cervical and upper two thoracic segments of the sympathetic chain removed with the stripper, and the wound closed.

October 13, 1929. Pain much better not only in the right hand but generally. "Needles and pins" and "burning" no longer present in hand. Not much if any change in temperature and no venous engorgement.

October 22, 1929. The skin of right hand not so shiny or thin looking as left. There is less pain in both hands than there was before operation. Not much difference, right a little less painful than left.

The patient wanted the operation for relief of pain in the legs, and this was done on October 26, 1929, under gas-oxygen and ether. The abdomen was opened to left of midline, the intestines were drawn and held over to the left, the posterior parietal peritoneum was incised to the right of the cecum and ascending colon and these were now drawn medially, exposing the vena cava inferior. This was also drawn medially and the right lumbar sympathetic exposed and removed from the diaphragm to beyond the pelvic brim. The wound in the posterior peritoneum was then closed and,

after drawing and holding all intestines to the right, the posterior parietal peritoneum was opened along the outer side of the sigmoid and the descending colon. These were then drawn to the right as was also the abdominal aorta and the left lumbar sympathetic chain was "stripped" and removed from the diaphragm down into the true pelvis.

The next day the patient informed us that both lower limbs felt better. There was some venous engorgement but not so marked as in Case 1. There was not much change in temperature, the legs had not been cold previously. Their color had changed, however, from pale to pink.

A peculiar notation was made on November 3, 1929. "The left hand has been much better since operation." This was noticed by everyone.

The patient left the hospital on November 25, 1929, the pains being considerably improved but no change in joint function.

Case 4. Mrs. D., admitted to St. Mary's Hospital September 10, 1929, walking with canes. Complained of arthritis in all joints of all the extremities causing great disability. Began 10 years ago in right wrist and grows worse each year.

This was a rather poorly nourished patient whose fortitude was almost totally exhausted. She had known of some of the others and had determined to try the operation.

All the extremities are constantly cold and clammy, the lower more so than the upper. Both knees are flexed, the right to 45°, the left somewhat less. Any attempt to straighten either limb causes pain and protest. Flexion, however, can be increased to a little more than a right angle. There is marked grating and creaking on movement. The right is much worse than the left. Roentgen ray reports "marked irregularity of articular surfaces with partial destruction of the cartilage. There is more bone proliferation on the left."

On September 14, 1929, under gas-oxygen-ether, a right lumbar sympathectomy was done.

September 18, 1929, patient states right limb is painless and she can now straighten out the knee. (She did not know we had not operated on both sides.) The left is the same as before. Right foot and leg warm, dry and pinkish; left pale, cold and clammy; right veins prominent, left not visible.

October 1, 1929. She was up in chair and was taken home much better and seemed happy.

I saw this patient some two months ago. She was preparing supper for the family. She was not using a cane (she formerly used two). She complained that the pain was as bad as ever. The knee was swollen and there was some fluid in the joint. I advised rest. The limb was still warm and dry and the knee was straight. The left was as before.

Case 5. Miss G., aged 71, admitted to St. Mary's Hospital on October 24, 1929. A stretcher case. Complains of constant pain in joints, particularly those of the limbs, with progressive deformity and disability for the past 15 years. Since January, 1929, has been much worse following an attack of influenza. Has been 5½ years in bed.

This was a well marked case of advanced arthritis deformans. Her spine was rigid but head could be moved on it. There was ankylosis of elbows, wrists, fingers, hips, knees and ankles. Left palm cold and moist, temperature, right 93°, left 91°.

The right hip and knee are ankylosed, each at an

angle of about 80°. Right knee is swollen, hot and tender and about twice as large as the left. The left is completely ankylosed at about 55°. Roentgen ray shows arthritic changes in all joints.

This patient also had been referred by friends of someone already operated upon. She was warned that the most she could expect was possible relief of pain, although even this was not certain. She asked to have the operation performed for relief of the lower limbs and this was done October 29, 1929. A bilateral lumbar sympathectomy was performed under ethylene anesthesia.

The left chain seemed very atrophic and I feared I must have only half of it. I could find no other part and did not expect much change on that side. Nevertheless, immediately after operation both feet were warm and dry, though sweat was profuse on the body and upper extremities.

November 1, 1929. The notation says, "Patient has had a very stormy time; severe cough and irrational. The temperature of feet is 99.4 F., oral temperature 99.8 F. The feet temperature before operation had been, right 93 F. and left 91 F."

November 5, 1929. Patient rational. Has no pain in lower limbs. Pain present in upper limbs but not so bad as before.

November 8, 1929. Right knee much smaller than before and patient has more motion in all the joints. Sits on side of bed and swings the feet without pain. Skin still shiny.

November 20, 1929. An abscess in wound opened. Skin of feet warm, dry and less shiny. Patient still has some pain in right thigh but not like the pain before operation.

She went home December 1 (wound suppurated) and I saw her last at New Year's time. She was very enthusiastic over the operation. She was in a chair, and got from bed to chair and back without pain.

These were all the cases operated upon for arthritis up to January 1, 1930. Since then, several others have been operated upon and in all there has been immediate relief of pain in the limbs operated upon. Whether the relief will be lasting or not only future observation will show.

The operation so far has had no unpleasant sequelae. I have performed it for Raynaud's disease with good success, for senile endarteritis obliterans without success, for a disease which *somewhat resembled* Buerger's description, with gangrene of the ends of fingers and toes, with relief of pain and healing of the open sores, and in a case of muscular dystrophy with slight if any change for the better.

Just how it relieves pain in arthritis is not yet known but it does increase the heat of the part and it does relax the muscular spasm. How much of the effect is psychic is another question I cannot answer.

In closing, I wish to state that Dr. Ralph Kinsella, professor of medicine at St. Louis University School of Medicine, as long ago as 1923 called attention to the fact that almost any kind of operation relieved these patients temporarily.

University Club Bldg.



## SPINAL ANESTHESIA IN BLADDER SURGERY\*

ROBERT VINYARD, M.D.

SPRINGFIELD, MO.

Ten years ago spinal anesthesia (or spinal block as it properly should be termed) had fallen into discredit. A series of fatalities, serious complications, and at times unsatisfactory anesthesia were reported. European clinics, however, continued to report its successful use.

Five years ago interest in this type of anesthesia was revived. Pitkin's work on controllable spinal anesthesia published in 1927 stimulated much study and research. A better working knowledge has resulted and the fatalities and serious complications have been prevented or avoided. Finally, the availability of ephedrine, with its slower, more prolonged peripheral vasoconstrictor action, has brought spinal anesthesia into general use. How extensively it is may be judged by the fact that it has been used in over 20,000 cases in each of several large clinics.

In our choice of anesthesia we are guided by three main considerations: First, its safety; second, its ease of administration; third, its adaptability to a particular type of surgery. It is the purpose of this discussion to point out the safety and particular adaptability of spinal anesthesia in bladder surgery. The following reasons may be cited:

1. The age incidence of prostatic hypertrophy, stone and tumor of the bladder shows that the average age of patients requiring bladder surgery approximates 70 years.

2. The frequency of chronic bronchitis, emphysema, myocarditis and nephritis, with a high nitrogen retention, in such patients makes them poor subjects for inhalation anesthesia.

3. Preoperative and postoperative high intake of fluids is not interfered with, which is a very important consideration.

4. The complete muscular relaxation gives good exposure without undue retraction. This facilitates the work and lessens shock.

5. The short anesthesia usually required in this type of surgery is adequately furnished by this method.

6. The small area of splanchnic vessels affected in the low anesthesia required avoids a marked fall in blood pressure.

During our early experience there were symptoms which caused some anxiety. These occurred before we understood the correct use of ephedrine and how to avoid loss of spinal

fluid. One patient complained of tingling sensations in the arms lasting about one hour. Pallor, clammy perspiration and nausea were associated with marked fall in blood pressure. In one instance a second injection was needed to obtain anesthesia in a patient with an unusually large bony frame, the large spinal canal probably allowing a rapid diffusion of the injected fluid.

Using this method in 150 cases at the Frisco and Missouri Baptist hospitals in St. Louis during the past two years there were no fatalities and no serious complications. During the same period, with ethylene anesthesia there were two fatalities from bronchial pneumonia following operation for bladder stone, and one fatality from tracheal aspiration of vomited fluid following prostatectomy. Included in this series were cystoscopy with pyelograms in tuberculous bladders, cystostomy for stone in the bladder, cystotomy for removal of stone from the ureteral orifice, first and second stage prostatectomy, punch operations, and repair of bladder hernia following prostatectomy.

Pitkin's method was followed in 85 per cent of the cases. The method described by Stout was used in 15 per cent. Both were equally successful. The skill of the anesthetist and a well developed technic are very important factors in the success of this method.

*Preoperative Preparation.*—Luminal, grains  $1\frac{1}{2}$ , is given the afternoon before and morning of the operation. Fluids are forced to the time of operation. Ten grains of sodium barbital are given by mouth two hours before operation. Morphine, grain  $\frac{1}{6}$  and scopolamine, grain  $\frac{1}{150}$  are given hypodermically 45 minutes before operation. Ephedrine, grain  $\frac{3}{4}$ , is injected intramuscularly five minutes before spinal puncture is made in the second or third lumbar interspace. The subcutaneous tissues are infiltrated with 1 per cent novocaine, a 22-gauge puncture needle being used. This prevents undue trauma of the dura or cord and lessens postpuncture leakage. The loss of any spinal fluid is avoided as much as possible. Postpuncture leakage and loss of spinal fluid at the time of puncture are responsible for headache following this method. Loss of spinal fluid lowers the intraspinal pressure and increases the rapid diffusion of the injected solution. This is apt to give a higher anesthesia than is necessary. After ten minutes the patient is placed in the Trendelenburg posture to facilitate operation and prevent cerebral anemia. After anesthesia is well established 5 grains of sodium amytal may be given intravenously to pa-

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tients who are unduly apprehensive or desire to sleep.

*Postoperative Care.*—The patient is kept in the Trendelenburg posture for three hours after the operation. Fluids are given by mouth. Carbohydrate feeding is started on the day of operation. This obviates the intravenous use of glucose or salt solution. The absence of postoperative nausea, vomiting, pain and shock is striking.

Spinal anesthesia has its limitations even in bladder surgery. A few contraindications may be mentioned: (1) Lack of skill and experience on the part of the anesthetist; (2) any pathological condition of the nervous system; (3) marked hypotension; (4) blood stream infection. Puncture of the dura may add a meningitis to the septicemia already present.

#### SUMMARY

Spinal anesthesia or block is safe and particularly well adapted to bladder surgery. The high age incidence and associated complications make the patients bad risks for inhalation anesthesia.

Ephedrine given intramuscularly five minutes before spinal puncture will prevent any fall in blood pressure.

Measures that prevent postpuncture leakage and loss of spinal fluid will eliminate headache. For the same reason the Trendelenburg posture during and after operation is important.

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## URINARY BLADDER OBSTRUCTION NOT DUE TO PROSTATIC HYPERTROPHY\*

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Since the earliest time the profession of medicine has been well acquainted with the fact that the common cause of urinary obstruction is the hypertrophied prostate. Lateral lobe enlargement was generally accepted. Then in 1761 Morgagni<sup>1</sup> called attention to a roundish protuberance of the same structure as the gland and spoke of Theophilus Bonito having mentioned a median lobe in 1700 but calling it the "uvula vesicae." Thus, the possibility of obstruction being caused by lateral or median lobe enlargement was established early.

It became evident, however, that other cases existed which remained unexplained by the hypertrophy of the lobes of the gland be-

cause patients sometimes complained of the same train of symptoms, residual urine would be noted and yet no glandular enlargement could be detected during life and none discovered at autopsy. The first suggestion of the causative factor in these cases came from Sir Charles Bell<sup>2</sup> in 1812, when he described a prominence which bears his name across the posterior part of the neck of the bladder that he declared was hypertrophied ureteral muscle. He further thought that the large muscles were the result of constant contraction due to an irritated bladder. In other words, he thought the bar was the result rather than the cause.

Guthrie<sup>3</sup> first described the nonprostatic bar in his lectures at the Royal College in 1830, saying, "This bar is quite membranous and does not include the elastic structure, which is not diseased, neither is it that part called the third lobe nor is there any projection into the bladder save the bar or valve formed by its mucous membrane at the very meatus." Guthrie also described a condition, similar to that which Bell discovered, as "an hypertrophied condition of those muscular bands which intervene between the two orifices of the ureters, generally known as muscles of the ureters."

In 1836 Mercier<sup>4</sup> described the condition as "a semi-annular eminence very like the pyloric valve of the stomach if it existed only on the lower half of the orifice," and explains the cause as spasm of the muscles which become permanently contracted due to stone, or inflammation of the neck of the bladder. This fibrous bar formation was ably discussed by Sir Henry Thompson in 1873 who made the additional observation, substantiated by specimens, that along with this condition a stricture in the anterior urethra was noted in many cases. This, he said, explained the erroneous statement made by his contemporaries that many patients with strictured urethra have hypertrophied prostates.

After all these excellent constructive observations some French authors, led by Guyon, went off on a fruitless train of reasoning, purely hypothetical and based upon lack of close observation which caused them to declare that the urinary retention without hypertrophy was due to "degenerative" processes, arteriosclerosis in the bladder wall causing atony of the bladder. This led to the pessimistic conclusion that removal of the obstruction would be of no avail. As late as 1911 Wear, in the support of this theory, wrote: "Senile changes of chronic obstructions are capable of seriously damaging the bladder muscle in its function. There are incurable forms of retention

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in the senile in whom no mechanical or nervous cause can be determined." My associate, Bransford Lewis, in a paper read before the American Urological Association in June, 1914, firmly opposed this idea and set down two facts: (1) That there is urinary retention without hypertrophy which is occasioned by one of two causes only, namely, mechanical obstruction of nervous influence; and (2) if we do not perceive which of the two is in play it is but an evidence of our human frailty in diagnosis. Albarran, Chetwood, Young, Freyer and others held to the same belief and at the present time it is universally accepted.

We now recognize that mechanical obstruction may be due to bladder tumors, calculi, foreign bodies, acute prostatitis, carcinoma and sarcoma of the prostate, and hypertrophy of the prostate, lesions that are well known and fairly easy to diagnose. Then there is that elusive type of obstruction which is so commonly unappreciated but which is found in a goodly number of men suffering from bladder trouble. A close pathological study reveals that these troubles may be divided into four types, viz:

1. Enlargement of Albarran's subcervical glands.
2. General hypertrophy of the trigon.
3. Congenital valve formation usually extending from the verumontanum laterally and toward the bladder as an inverted Y.
4. *a*, Definite bar or dam of a glandular type made up of glandular and muscular tissue; *b*, musculofibrous bar which crosses like a dam from the lateral walls and pulls the ureters close to the sphincter; *c*, sclerotic dam composed of scar tissue forming a firm collar at the bladder neck that pulls the verumontanum up against the sphincter.

The treatment of these conditions is based upon Guthrie's statement made in 1830: "The bar or dam at the neck of the bladder must be divided and the question is how is it to be done with the greatest safety." He then devised a prostatic catheter containing a blade which could be projected laterally and make an incision through the bar as the catheter was being withdrawn. Mercier, Civiale and others devised ingenious instruments to incise or excise the obstruction transurethrally. These instruments were severely condemned by some contemporaries because of the hemorrhage and the "blind" procedure. Whereupon the perineal and suprapubic operative procedures were and still are practiced although surgeons feel that the removal of so small a bar should not necessitate such a major effort.

The urethral instruments came back into

vogue in 1874 with the introduction of Botini's cautery, which made use of the galvanic current and lessened the danger from primary hemorrhage. The invention of the small glow lamp in 1876 and Edison's incandescent lamp in 1880 made possible the Nitze cystoscope. This was quickly followed by the high frequency current and the Beer electrode which made visual operative work possible through the cystoscope and minimized the fear of bleeding. Bransford Lewis modified the electrode by providing a blade to use with the high frequency current through his universal cystoscope. Hugh Young devised his prostatic punch in 1908 after studying a case which he reports in his "Practice of Urology." On cystoscopic examination he noted that this patient had an irregular transverse bar which he excised by volsella forceps through a suprapubic incision and dilated the urethra with the finger. Young says the amount of tissue removed at the suprapubic operation was so small that it seemed ridiculous to have to perform that operation for this purpose. He then devised his punch. Caulk improved Young's punch, principally by making the blade a "cautery cutting" rather than a cold cutting instrument. The principal objection to the cautery and the high frequency current is the heat penetration in neighboring tissue which causes sloughing and secondary bleeding. To overcome this Clyde Collings, collaborating with Wappler, presented what he termed the "electrotome" before the American Urological Association in 1926. This instrument utilizes the principle of the radiothermic blade but the special generator delivers a current of 1,400,000 oscillations per second, which is 50 per cent more rapid than the radiotherm, thus permitting the blade to cut instead of burn and does so under water. The heat penetration is infinitesimal when compared with the fulgurating electrode, the destruction and sloughing of neighboring tissue is avoided and secondary hemorrhage is negligible. This instrument, used through a McCarthy panendoscope, allows perfect vision not only of the excised tissue but also of the adjacent structures, such as the verumontanum, bladder wall, ureters, etc., during the operation. Thus, one is at all times so oriented that only the bar is excised, a clean-cut incision is made and the result of the operation is viewed before the instrument is withdrawn. Practically no secondary hemorrhage results.

In the treatment of these conditions we believe that each case should be studied closely and a plan of procedure mapped out to fit it. The early type, showing latent or evident in-

fection of the posterior urethra, the prostate and the seminal vesicles, yields best to Kollmann dilation, irrigation, massage, etc. The bar smooths down, the small residual urine disappears, the urine becomes clear, the prostate softens and a serious future situation is avoided.

The congenital valve type of obstruction is best treated by incising the valve with a high frequency electrode or Collings' electrotome. The glandular and thick muscular types are best punched out with the Caulk cautery punch. The sclerotic and fibrous bars which act as a dam across the lower sphincteric orifice are best relieved by the Collings' electrotome. All infections of neighboring tissue should be cleared up to prevent recurrence.

#### CONCLUSIONS

1. There are conditions other than prostatic hypertrophy which cause obstructive symptoms.

2. Each case deserves individual study in order to outline the proper procedure.

3. Many cases can be relieved by office treatment or a few days' stay in the hospital thus avoiding radical major surgery with its attendant danger, expense and suffering.

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#### TRACHOMA\*

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Trachoma is one of those clinical syndromes of which little is definitely known and ophthalmologists, health officers, and biologists are so divided in their beliefs that anything one says regarding this very dreadful yet interesting disease must needs be radical, for there is no middle ground. I therefore approach my subject with much respect and no little hesitation.

Much research has been done in an endeavor to discover the etiology of this condition and several theories have been advanced none of which seems to apply to all cases. Authorities are divided on many points so it is safe to say that we are at present in a quandary as to a sure and cer-

tain way to handle these cases or a method that will give uniformly good results. When many methods are advocated for the treatment of any disease it is safe to assume that little is really known about it.

Textbooks define trachoma as an inflammation of the conjunctiva originating by infection and infectious through its secretions.<sup>1</sup> Other authors define trachoma as a chronic inflammatory disease characterized by the presence of trachoma bodies or granulations and ending in cicatricial changes.<sup>2</sup> Neither of these definitions is conclusive. In the first the stress is laid upon the infectiousness of the disease, a statement that I do not believe has been proved. In the second definition "trachoma like bodies" have been repeatedly found in many other diseases, such as vernal catarrh, phlyctenular conjunctivitis, tuberculosis of the conjunctiva, folliculosis and others.

Trachoma seems to be almost as old as man. It is "as old as the Nile, the Simoon, the Desert." Yet the ancient Egyptians do not appear to have definitely attributed any specific pathology to it.<sup>3</sup> In Arabian writings of the eleventh century it seems to be well known and definite systems of treatment were advocated. It seems to have been well known in ancient Rome and Greece, and Fukala<sup>4</sup> quotes some of the writings of Cicero, Pliny and Horace which tend to show that they suffered markedly. They called their condition "lippitudo." According to Fukala trachoma has existed in almost every country at all times but it has been more active in southern countries. He claims it was actually epidemic in ancient Rome at the time of Christ and that some of the most influential people of Rome were sufferers. The interest of the western world, however, is supposed to have been due to Napoleon's army contracting the disease in Egypt in 1798 and causing its widespread dissemination through Europe on his return. Stuckey, Tombin and Hughes<sup>5</sup> use this as proof of the infectiousness of the disease. I can find no account of an epidemic occurring in Europe following the Crusades when Cumston tells us it was rampant in the Orient. Furthermore, the early writers lumped many conditions under one head which we now diagnose as specific entities. Thus, Fukala<sup>4</sup> says that tumor meant all swellings, including inflammations, cysts and true tumors. Just so "lip-pitudo" may have included any rheumy eye condition, therefore I do not see how one can be sure that true trachoma as we know it was

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the eye scourge of the ages. Certain diagnosis is not at all easy in this day and age.

The etiology of trachoma is unproved. Most authors accuse the disease of being infectious and many bacteria and parasites have been condemned as guilty of causing the infection. As is often the case, each investigator has claimed a specific coccus, bacillus, or parasite as the cause of trachoma, and other workers as religiously have labored to disprove these claims or weaken the theories until we are now not much further advanced than we were years ago, so far as the etiology of trachoma is concerned. In 1897 the United States Government ordered trachoma to be classed as a dangerous contagious disease and any alien suffering from it was to be deported.<sup>6</sup> This is a safety measure and is a very proper procedure, for although I doubt that the disease is infectious until its infectiousness can be proved or disproved known sufferers should not be admitted to our shores. This act in no way adds weight to the theory of infectiousness and is merely a proper move of an interested government. That it has been successful I rather doubt for Fox, Mossman, Stuckey, H. Gifford, and many others claim that trachoma is not only a common but one of the great causes of blindness in our asylums.

I shall not enumerate all the different strains of bacteria or parasites accused of causing trachoma. Their numbers are almost legion and run the gamut of the lowest animal kingdom. Noguchi,<sup>7</sup> that sainted worker whose recent efforts have done the most to substantiate the infectious theory, seems to have isolated a bacillus, the *B. granulosis*, which when transplanted on the conjunctiva of certain apes and monkeys causes signs and symptoms very similar to trachoma in man. However, his wonderful researches need corroboration and further confirmation. Most workers have thus far failed to duplicate Noguchi's findings.

From the theory of an infectious etiology there are many grades until we come to those who discredit the theory entirely. Waldman<sup>8</sup> with many others believes that trachoma is infectious and that it is spread by the secretions. Madden<sup>9</sup> corroborates this view and believes flies are carriers. Nearly all writers who proclaim the infectiousness of trachoma also maintain with Nevat that deficient hygiene promotes its development, and Nevat also states that adenoid tissue creates a predisposing state. According to Madden, trachoma is not highly contagious although highly infec-

tious and the incidence is influenced by heat, glare, dust, and eye strain; he also believes there is a large vitamin element. In accounting for the occasional case of monocular trachoma met with he says it may indicate either that the conjunctiva of the healthy eye is very resistant or that the trachoma in the infected eye is only very slightly contagious. He also notes that the spread seems to be linked with a lack of personal hygiene and that it occurs but rarely amongst the better classes.

Bailey<sup>10</sup> and others cite the government survey of Tennessee, Kentucky and Missouri to prove the communicability of trachoma and show where whole families were infected, and Angelucci<sup>11</sup> reports cases produced by autoinoculation in prisoners after the war.

Then we find a whole school of investigators who deny that trachoma is either highly contagious or highly infectious and some who do not believe at all in an infectious etiology. Mellet concludes that trachoma is not contagious in adults but may be so in children. Caramazza<sup>12</sup> mentions Angelucci's work in which the relationship of trachoma with alterations in the sympathetic nervous system and imbalances in the endocrine glands was shown and there was intranasal pathology in the majority of these cases. This was substantiated by Caramazza<sup>13</sup> who found intranasal pathology in 53 out of 55 trachoma patients. That trachoma seems to be associated with a certain stratum of society has long been known. All through the nineteenth century writers emphasized the belief that trachoma was increased by crowding and by deficient hygiene. They found that jails, asylums and poorhouses seemed to be breeding places. On the other hand, later researches seemed to show the effect is found not so much by overcrowding as by lack of proper hygiene and cleanliness. Fox, Mossman,<sup>14</sup> Crouch,<sup>15</sup> and others have shown that at least in this country trachoma seemed to flourish in many places where population was not large but rather scattered. However, in all these cases, e. g., in the mountainous regions of Kentucky or Missouri, hygienic conditions were deplorable. Again, Mossman has pointed out that trachoma is not uniformly prevalent throughout a state, some communities being heavily infected while others are relatively or completely free. This seems to be a rather pointed argument against its infectiousness for if trachoma were as contagious or in-

fectious as is claimed by some I cannot see how the incidence could be so sharply confined geographically.

G. W. Walker noted that the only cases of trachoma in the San Joaquin Valley of California were those brought in from the outside. He has seen families with trachoma living in most unhygienic surroundings but no children reared in these families in this locality contracted the disease. This certainly challenges the infectiousness of trachoma. For surely were trachoma even slightly infectious some of the children must have contracted the disease. This brings up the interesting thought of the effect that locality or climate may have. In Hungary, where there is much trachoma, it is believed that the cause is in the water. In Egypt the heat and glare of the sun with the help of the sand were thought responsible. Madden says no race is exempt but that there is undoubtedly race susceptibility. It is well known that the Negro is practically if not entirely immune which, it seems to me, is another argument against the infectiousness of trachoma. It is common knowledge that certain races are more resistant than others to a given infection but that a race may be quite immune is hard for me to conceive.

Then there is the question of whether trachoma is a local disease or part of a generalized condition. This also is at present not definitely known but the theory is to me alluring and not entirely devoid of proof that it is more than a local disease. Tschirkovsky,<sup>18</sup> after remarking that instead of a racial immunity or predisposition there is rather a difference in the social and economic condition in the infected areas, stresses the point that those affected belong in large part to the lymphaticohypoplastic constitution. At Blascovic's clinic in 1925 every trachoma patient was examined for a pathological condition in the adenoid ring and practically every one showed disease of the nose or throat. One otolaryngologist developed a monocular trachoma seemingly after performing a tonsillectomy on a trachoma patient. This led to a series of researches in Blascovic's clinic the outcome of which seemed to show that tuberculosis was a decided factor in his cases. Marricone also calls attention to the high number of positive tuberculin reactions in trachoma patients. We have under our care now a young lady with typical monocular trachoma with a marked positive reaction to the Mantoux test who showed improvement following the test.

Stuckey<sup>17</sup> has long held that trachoma is a

vitamin deficiency disease and has stood his ground almost alone. He may not be far from the right track. His theory would logically explain the cases found in the mountains among people whose main food substance is corn and the food variety is fixed. Royer<sup>18</sup> comments on the views of Stuckey and although not giving them his unqualified endorsement he believes the theory should be seriously considered. He mentions that xerophthalmia is a proved food deficiency disease and states that this condition and trachoma have many points in common. He also notices that in Ellis Island where they are practically never without trachoma no intern, nurse, or orderly has ever contracted the disease nor have any outbreaks been reported in slow ships coming from Mediterranean ports even when the voyages have lasted for months. Royer<sup>19</sup> claims that public health officers have entirely overvalued declarations that trachoma is a dangerous infectious disease. Harrison<sup>20</sup> points out the frequency of the affliction among the Chippewa Indians inland while members of the same tribe residing on the north shore of Lake Superior are absolutely immune. Attention should also be given to the endocrines and I believe that every case of suspected trachoma should have, in addition to a careful ear, nose and throat examination and search for focal infection, a Mantoux intradermal test for tuberculosis, a basal metabolic rate, and a blood calcium examination and a well balanced diet in our continued search for organisms. We are prone to bury our eyes in a microscope and forget there are other worlds to explore.

The diagnosis of trachoma is not always easy, especially in the early stages. Authorities are often unable to say that a case is definitely one of trachoma until some little time has passed. This fact, together with an ingrained fear of the dangerous nature of the disease, has led many to use drastic and heroic treatment early with the result that we too frequently see argyrosis of the lids or cicatricial changes imposed by the caustic agents used. Stuckey claims that many eyes are ruined by the treatment for trachoma when the condition is not trachoma. Several conditions are often mistaken for trachoma, especially follicular conjunctivitis and vernal catarrh, tuberculous lids and even gonorrheal ophthalmia. I have seen children taken from school and put in a trachoma school with known trachoma cases just because the conjunctiva bore follicles and looked suspicious to the exam-



iner. If trachoma is really so infectious, in what more beautiful or sure way could these suspects be assured of the disease. Happily most of these children are released after two weeks none the worse from their contacts.

The treatment is both surgical and medical. The surgical treatment consists of expression, grattage, scraping and scrubbing of the conjunctiva. Most authorities agree that surgical interference is a great aid not only in curing the condition but in shortening the course. In the medical treatment the agents that have been tried are legion. Almost every caustic has been used,—silver nitrate, zinc, copper, acetic acid, alum,—and chaulmoogra oil was given a trial by the Italians. In light and heat therapy the whole gamut from roentgen rays, ultra-violet rays, radium, through radiant heat to infra-red have been tried, and carbon dioxide snow has been used. And still we are not much further advanced than we were when the conjunctiva was scraped with fig leaves.

#### CONCLUSION

1. Trachoma seems to be one of the most ancient of eye afflictions.

2. That it is a contagious or infectious disease is not well proved.

3. The etiology is unknown but may not be of an infectious character.

4. Much work should be done not only from the standpoint of organisms but with the idea that the origin may be endocrinal or due to a food deficiency.

5. It may be dangerous to segregate children too quickly because of suspicious follicular conjunctival conditions and place them with proved trachoma patients.

6. Many lids are ruined by drastic treatment which does more harm than good.

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## BRONCHOSINUSITIS

### THE ROENTGEN RAY EXAMINATION AND ITS CORRELATION WITH THE CLINICAL SYMPTOMS\*<sup>1</sup>

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In bronchosinusitis we have a coexisting involvement of the paranasal sinuses and the lower respiratory passages. Most observers have noted that the two conditions show the initial involvement at the same time in a large percentage of the cases.

An experienced observer can determine with a high degree of accuracy the existence of upper respiratory infection at the accessory sinuses by radiographic studies of the lung fields. The frequency with which sinusitis produces characteristic bronchial and pulmonary changes becomes most striking when checked by roentgenograms of the chest.

The modern tendency in chest study is to prove that all doubtful cases are nontuberculous. In all the doubtful cases there should be routine sinus examinations by the otolaryngologist and the radiologists. The recognition of upper respiratory infection as a source of lung disease is of paramount importance. It is not unusual that such patients are advised to change climate and occupation and many of them have been treated as tuberculous in reputable health resorts. Many instances can be cited of such patients having been treated by absolute rest in bed for a year or more with no success whatsoever. The incidence of pulmonary complications in paranasal sinus disease has been estimated by various observers as ranging from 25 to 75 per cent. In common with the experience of others, we have observed that the patient often does not complain of any sinus discomfort, some postnasal drainage frequently being the only symptom mentioned. It will also be found that the initial sinus involvement has practically subsided while the pulmonary lesion persists. Active resolution of the lung infection frequently occurs as soon as the upper respiratory involvement has been relieved.

In this paper we wish to emphasize our belief that synchronous sinus and respiratory

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disease may be identified in a large number of cases. Similar observations have been made by Wasson, Mullin, Webb, Black and numerous others and are not new to those who specialize in otolaryngology and chest conditions.

The coexisting pathology is to be anticipated when the direct interrelation both mechanical and circulatory is considered. The bronchogenic or mechanical is obvious when we recognize the sinuses, pharynx, trachea, bronchi and peripheral lung structure as an intimately related system. Gravity and inspiratory effort are contributing factors.

Quinn and Meyer have rather conclusively proved bronchogenic contamination of the lung fields from upper respiratory sources, especially during sleep because in the recumbent position aspiration is greatly facilitated. The most common lesion is empyema of the maxillary sinus. However, in our experience and in that of others, many of the advanced cases show a pansinusitis of the hypertrophic or hyperplastic type.

The other route of infection of the lung from the sinuses is by way of the lymphatics and the blood stream. Mullen and Ryder have shown that lymphatic absorption is by way of submaxillary and internal jugular nodes, the lymph ducts, the great veins, the right side of the heart and the lung fields. The bronchial and mediastinal glands involved are the peritracheobronchial, the intertracheobronchial and the interbronchial. In the lung fields the characteristic findings are of three rather distinct types: (1) The soft exudative process coexistent with the acute upper respiratory infection; (2) the bronchiectatic lesion of long duration incident to chronic sinusitis; (3) the disseminated interstitial fibrosis which often shows no bronchiectatic manifestations but associated with chronic infection of the upper air passages.

*The Acute Exudative Type.*—The typical pulmonary complication of acute sinus or upper respiratory infection may be described as a local pneumonic area, usually in the lower half of the right or left lung field. This pneumonic area appears as an indefinitely circumscribed homogeneous density not restricted to the peribronchial structure and more lobular in distribution. There is no dense consolidation and no associated fibrotic change; obviously, it is a recent soft exudation with no antecedent local disease indicated.

In this type of lesion the nasal sinuses will show an opacity of a similar character, i. e., a catarrhal sinusitis. Negatives of the accessory sinuses show sharp crisp outlines of the

bone cells and only partial loss of ventilation. The findings of fibrosis and hyperplastic tissue are not present. Empyema of the sinus may ensue in these cases and the condition become chronic. The lung pathology continues as a persistent local exudation but subsequent fibrosis and manifestations of the second type above enumerated may ensue. In the great majority of cases, under adequate treatment, the sinus and pulmonary changes resorb simultaneously without demonstrable residues either in the sinuses or the lung fields.

*The Bronchiectatic Lesion.*—The most common variety of pulmonary complication encountered from sinus disease is the bronchiectatic lesion. This may exist as a progressive process from the acute involvement above described but is often a slow and insidious extension from chronic sinusitis. Often, this is not discovered until lung symptoms become troublesome to the patient and he seeks medical aid because of cough, excessive sputum or pleural complications.

The radiographic findings then become quite characteristic. The bronchial trees to one or both lower lobes become thickened and dilated. If advanced, sacculated pockets with mottled consolidation and induration of the peribronchial structure are seen. One or more lobules may be involved showing isolated small opacities or an entire lobe with mottled consolidation extending to the diaphragm and pleura. Pleural reaction and thickening often ensue and may become extensive in cases of reinfection of the upper air passages with more virulent organisms. In many cases where early bronchiectatic changes have become manifest relief of the sinus infection will show a parallel course of resolution in the lung pathology. A large percentage of the cases will completely resolve with only a perceptible fibrotic thickening of the bronchial tree persisting.

Resolution does not readily occur in cases in which the lung involvement has persisted over months and years. The rigid fibrotic walls of the bronchi and bronchioles, having lost their normal mucosa and reflex mechanism, are ever present and permit renewed infection, the accumulated secretions being readily infected. Bronchiectasis of this degree when once established requires heroic measures to relieve completely. However, bronchiectasis rising primarily from an initial chronic sinusitis or delayed resolution of an exudative or pneumonic type shows unmistakable benefit from relief of the upper respiratory infections. Many cases have been completely relieved by sinus therapy alone.



The roentgen ray negatives of the sinuses in this bronchiectatic type of lung involvement show pathology of a chronic nature, usually with much hyperplastic tissue in one or more paranasal cells giving an obscured dense outline due to the tissue thickening and the reduced air content. Many of these cases show empyema of the antra or other sinuses.

*Chronic Fibrotic Type.*—The third type of lung involvement is the generalized plastic lesion. This form of secondary lung structure involvement from upper respiratory infection is the least characteristic of all. Apparently, the tissue changes are dependent upon the type of organism. The lung changes are similar in many respects to the postinfluenzal residues so frequently seen following the epidemic of the late war. The ex-service men furnish ample material of this type, the prevalence of sinus disease in them being well known to all medical men in the military service. In the chronic asthmatic we also find pulmonary changes not greatly unlike the general stroma tissue thickening incident to special types of chronic or repeated paranasal infection.

The lung tissue change we designate as characteristic of this type of chronic bronchitis may be described as an intense generalized interstitial fibrosis. All portions of the bronchial tree, including the more peripheral branches and sometimes the alveolar walls, show the diffuse uniform fibrous change. The tissue outlines are usually quite sharply defined due to the heavy density and attempted organization. The parenchymatous structure is practically always well ventilated but at times may show perceptible veiling consistent with a mild indurative process. The dense induration of the tuberculous lesion is not present and the generalized involvement practically excludes a tuberculous origin.

The asthmatic lung field shows greater hilus thickening with very ill defined bronchial markings which are not carried to the peripheral lung fields. The emphysematous peripheral zone with no pleural involvement also helps to differentiate the asthmatic lung. Pleural involvement may accompany the nontuberculous generalized involvement, seldom, however of the vertical type and usually with a higher degree of resolution as the disease subsides.

#### SUMMARY

1. The coincidental infection of sinuses and the bronchial trees has been described as bronchitis. The persistence of paranasal infections produces characteristic changes man-

ifested by bronchiectasis and a disseminated interstitial fibrosis.

2. The lung changes are classified under three types: (A) The acute peribronchial exudative infection; (B) chronic bronchiectatic pathology; (C) disseminated fibrosis without bronchiectasis.

3. The lung field contamination has been shown to occur both by the bronchogenic and the circulatory routes.

4. We are emphasizing the necessity of attention to paranasal infection in order to relieve chronic pneumonitis and prevent incurable bronchiectasis.

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## FOOD SENSITIZATION AND TREATMENT\*

ORVILLE HARRY BROWN, M.D.

PHOENIX, ARIZ.

I have been interested in asthma and allied problems for more than twenty years, have accumulated a vast number of observations, and have drawn certain conclusions some of which appear to be of considerable value. I have advanced certain theories which have helped me to a better understanding of the problem of sensitization.

The observations made 30 years ago upon conditions even yet generally termed serum disease, protein shock, etc., have led to the explanation of a great variety of symptoms and conditions designated variously as allergy, sensitization, hypersensitization, anaphylaxis, etc. I prefer the simple but expressive word "sensitization" as a general term.

I like to think of sensitization as a quick type of inflammation, manifesting its ordinary signs sometimes so suddenly and violently as to produce instant death. I recall one case in which I applied a little powdered cottonseed meal to a scratch on the arm and before many seconds I was giving the patient adrenalin to keep him from choking to death. A number of cases of sudden death have been reported following the application of small amounts of protein to scratches on the skin.

\* Read before the New Mexico State Medical Association, June 5, 1930.

Practically any tissue in the body may be affected by sensitization inflammation. The common types are hay fever, asthma and eczema. Less common types, which I deem classifiable as sensitization processes and yet occurring fairly frequently are, hives, angioneurotic edema, flatulence, migraine, trigeminal neuralgia, cystitis, neuritis, pruritus, certain cardiac irregularities, pharyngitis, bronchitis, arthritis, colitis, gastro-enteritis, hypertension, and perhaps epilepsy. (I do not mean to imply that infection may not be the sole or associated cause in certain types of these conditions.) Whenever there is a severity of symptoms out of proportion to the discoverable pathology it is always well to think of sensitization. Every now and then I catch myself nearly overlooking a sensitization process even though I am constantly watching for it.

The substances responsible for the sensitization processes are usually protein in nature; chemicals however such as acetylsalicylic acid, quinine, etc., may produce sensitization reactions. I have seen about six persons thrown into violent asthma by acetylsalicylic acid and recently had a cement worker who gets a dermatitis of the hands and feet when working with cement, very probably a sensitization reaction.

The essential pathologic change in sensitization phenomena appears to be an acute (though it may be chronic) edema as exemplified in hives and hay fever. The individual who has had hay fever knows that his mucous membranes become swollen and the probabilities are that in asthma the same type of swelling occurs in the bronchial mucosa as exists in the nasal mucosa in hay fever. Most authorities believe that muscular spasm of the bronchiolar muscular tissue is the essential pathology in asthma. I have been inclined to doubt the importance of muscle spasm but admit that it may accompany the acute inflammatory swelling. Secondary bacterial infections may be important and serious complications developing upon the sensitization processes.

Bacterial processes, i. e., focal infections, often seem to be primary etiologic factors in the development of sensitizations. Cleaning up the infection often relieves the sensitization or at least the symptoms. Bacterial proteins may themselves be the cause of sensitization.

The physiologic process of food sensitization is not thoroughly understood. I believe there is a definite failure in digestion and in metabolism. My theory is that proteins enter the alimentary canal after failing to undergo sufficient digestion and are absorbed into the blood stream in a half digested or perhaps wholly undigested state.

Vaughan found that protein may be split into two components, one toxic and the other nontoxic. The toxic corresponds to the peptones and albumoses. When whole protein enters the blood stream the body tissues must provide ferments for its digestion. The probabilities are that the ferments for digesting whole proteins are relatively nonspecific, perhaps analogous to pepsin and trypsin, whereas those which digest the toxins are relatively specific. That is to say, the ferment which will digest the toxin from milk protein may not be the same as the ferment which will digest the toxin from peanuts, or cabbage, or lettuce; whereas the ferments which digest the whole proteins of various foods are closely related. From this theory it is easy to understand that if too much whole protein or too many proteins enter the blood stream an enzyme, which I have designated as enzyme P, would supply the enzyme T, which digests toxins, with more toxins than they could handle. Thus there would be accumulation of toxins in the blood and tissues and serious sensitization reactions occur. If digestion can be maintained at a high level and not overtaxed there may be only a small amount of whole protein absorbed from the gastro-intestinal tract and the enzyme T be able to digest all the toxins supplied by enzyme P.

Another question which enters at this point is, why protein passes through the gastro-intestinal mucosa before it is entirely ready for absorption. As yet I have no answer to the problem other than conjecture. The probabilities are that the gastric mucosa is more or less permeable to undigested protein and that infection, malnutrition and malmetabolism make it more permeable.

Fractional gastric analyses done by us on a considerable series of cases show that almost invariably sensitization cases are deficient in hydrochloric acid. I have had the idea that some of the cases might be deficient in pepsin. The reduction in acid may be partially explained by the large amounts of alkaline mucus constantly developed and swallowed by sensitization patients. The bacteria which reach the stomach set up a gastritis that must further inhibit the production of acid.

What I have said thus far would be unimportant unless it pointed to a successful method of treating a certain per cent of sensitization cases. You may already have assumed that aids to digestion might be of assistance in preventing the half digested or wholly undigested protein from entering the blood stream. Such has proved to be the case, I believe. About three years ago I started using hydrochloric acid and pepsin. During these three years I



have treated a great variety and a considerable number of sensitization cases with aids to digestion. I had assumed that no acid other than hydrochloric would assist gastric digestion. Not long ago Sterling reported a series of cases of asthma in children treated successfully with phosphorus in the form of phosphoric acid. This suggested to me the use of phosphoric instead of hydrochloric acid and to my surprise it seemed to act just as well as did the hydrochloric. Of late, I have used citric acid and this seems to be equally as efficacious as the inorganic acids. I have also used acetic acid and it seems to have the same effect. Triple strength panteric capsules as suggested by Sansom also are helpful. I have not as yet used lactic acid but I purpose trying it in the hope that it will have a beneficial effect upon the bacterial flora of the alimentary canal as well as aiding digestion. Thomas, of New York, has found that a certain per cent of cases of asthma are greatly benefited by vaccine made from the intestinal bacteria. In October, 1927, Beckman reported the use of nitrohydrochloric acid in the treatment of hay fever, but holds that its good effect is from overcoming alkalosis. I believe that any true acid taken with food may serve the purpose. I prescribe the acid in a glass of water to be drunk during the meals with the panteric capsule taken in the early part of the meal. Of equal importance with the acid and the panteric substances are instructions to eat slowly, to eat a wide variety of foods, never overeat of any one article, masticate thoroughly and eat the smallest amount which will maintain weight. I believe a bit of advice of much importance though it seems too insignificant to mention is to take small bites.

Good digestion is a matter of psychology to a great extent. The meal should be a function. Proper preparation should be made for and adequate time allotted to it with reasonable regard for regularity. The dining room as well as the occupants should radiate an atmosphere of pleasantness and congeniality. Care, worry and irritation should be left behind on entering the dining room.

The preparation and serving of the food should be of no small concern. As a general proposition the person with severe sensitization should eat little or no raw food. The cooking should be such as not to destroy all vitamins but should disintegrate the cellular material so that the gastric juice has ready access to the cellular elements. The sight and odor of the food should call forth psychic stimulation of the gastric and intestinal secretions. Then comes the problem of sufficient will power to restrain oneself from overeating.

Another helpful idea I learned from Dr. T.

H. Glenn, of California, is a charting method. The patient keeps a diary, especially listing all articles of food which he eats and the symptoms that occur after the meals. Several weeks of charting will often show clearly that when certain foods are eaten the symptoms are much aggravated. Injurious food should be eliminated from the diet for a time; these will usually be eliminated by the patient before the physician has even seen the chart.

If a patient does well on the régime I have outlined I make no protein tests. If, however, relief is not complete I have the patient repeatedly tested for all proteins. Those to which he reacts most severely are eliminated from the diet for a time. I make it a rule to test each protein separately, testing the foods not commonly eaten as well as those eaten regularly. I use only the intradermal method. My method of treatment requires thorough understanding and cooperation on the part of the patient or some one acting for him.

I am well aware that other substances than food may be the primary cause of sensitization; bacteria, dust, hair, pollens, etc., must be kept in mind. My idea, however, is that the things most likely to cause disturbances are the things that a person is in contact with most frequently and of course we are brought in contact with foods more often than with other substances. Even when other substances than foods cause serious reactions foods are likely to be causing considerable trouble and eliminating the trouble caused by foods may be sufficient to give comparative relief from the symptoms.

I have treated a considerable variety of sensitization conditions by this method. Among the conditions are colds, hay fever, pharyngitis, bronchitis, angioneurotic edema of the eyes (blindness), gastro-enteritis, flatulence, asthma, hives, eczema, migraine, trigeminal neuralgia, epileptic or syncope attacks, cystitis, colitis and pruritus.

In persons who have had food sensitization but a short time relief is commonly afforded in a few weeks by proper regulation of diet and assisting digestion. In cases of long standing the fight is a long one and must be treated indefinitely. They will usually tax the ingenuity and patience of both the physician and patient. Mild eczemas, hives, pruritus and many indefinite skin disturbances respond with gratifying promptness. Not infrequently extremely annoying conditions clear up almost miraculously.

One case I like to refer to was a woman with an extremely severe cough of 10 months' duration that had been resistant to excellent treatment. I gave her one dose of adrenalin a few moments after being called to see her,

followed the adrenalin with about four doses of ephedrine daily and hydrochloric acid with her food and she had no more cough.

Another case of almost miraculous cure was a boy who was nearly blind from an angioneurotic edema which affected his eyes. He could barely see his fingers when held between his eyes and a bright light. He was told how to eat and four days later he came to the office without being led. He made a gradual but nearly complete recovery in the course of several months. It was necessary to use aids to digestion, careful dieting, testing for reactions and elimination of reacting foods from his diet. Such a result was most gratifying as he had been under treatment for two years and was growing worse with the prospect of total blindness. One of his physicians had recognized that his trouble was from food but had not been able to give him more than occasional temporary relief.

Another interesting case was a patient with trigeminal neuralgia. She has apparently entirely recovered. I have had promising results now in two or three cases of this type of neuralgia.

A group of cases which ordinarily shows excellent results are patients who complain of flatulence—stomach and intestinal gas. Flatulence is not a serious disorder but the patients are most grateful for relief.

I especially emphasize that early asthma and bronchitis often give brilliant results. These cases need to be carefully watched and treated whenever they have colds or other infections which lower their powers of digestion or put them below par in any way.

Within the past few weeks I had a case of epilepsy of 20 years' standing whose attacks have been wonderfully lessened. I do not know how much better she may get under careful testing and elimination from her diet of all reacting foods. Another case of apparent epilepsy is that of a little girl who has been cured for about eight months by no other treatment than the plans I have suggested.

My experience with the treatment of hypertension as a sensitization process is too limited to justify more than a mention of it but I feel enough encouraged with my results to continue the treatment.

My results with the "common cold" so-called have interested me more than those in any other type of sensitization. One chronic, frequent sufferer from "colds"—myself—has been almost entirely free of colds over a period of two years, an unheard of thing before the institution of the treatment here outlined.

I regard a "cold" as essentially bacterial in etiology; sensitizations however seem to have

much to do with preparing the soil for invasion by bacteria in certain cases at least.

#### SUMMARY

Food sensitizations are important in a great variety of conditions; especially do they complicate other sensitizations.

Whenever the symptoms are out of proportion to the discoverable pathology food sensitization should be thought of.

Aids to digestion may be of great importance in the treatment of food sensitization. The early cases especially are nearly always promptly cured by the use of acids with the food. Citric acid is a pleasant acid to take and seems to do as well as do the inorganic acids; vinegar may be a satisfactory and cheap substitute.

Early asthma, bronchitis, hay fever, eczema, flatulence, pruritus and other conditions mentioned in the body of the paper may give excellent results.

A few cases of migraine, trifacial neuralgia, epilepsy, cystitis, blindness from angioneurotic edema, etc., have given good results. Severe cases, especially of asthma, may be benefited but they will usually need to be attacked from all possible angles.

422 Security Building.

## HEREDITARY CATARACT

REPORTING AN UNUSUAL FAMILY HISTORY\*

E. T. HORNBACK, M.D.

HANNIBAL, MO.

In the seventeenth century Jacob K., the father of eighteen children, five girls and thirteen boys, dwelt in Kentucky. In 1798 several of these children moved to St. Charles, Missouri. Two of Jacob's grandchildren (first cousins) were united in marriage. To this union nine children were born, three girls and six boys. Four of these, two girls and two boys, had cataracts and it is with this family that the unusual record of hereditary cataract begins.

I wish to state here that the tracing of these families was a much larger job than I had anticipated and therefore the paper is not complete. I am hoping to pursue the work further at a later date. So far I have obtained the history of twenty-eight grandchildren fifteen of whom, eight girls and seven boys, have been operated upon for cataract. That is 53 per cent plus. I have obtained also the history of forty-one great grandchildren nine of whom, four girls and five boys, have been operated upon. Five of these great grand-

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



children, two girls and three boys, were of one family. Of the six children in this family, therefore, only one, a boy, has escaped so far but he is yet in his early twenties. More than 83 per cent of this family have been operated upon. It is noticed that the grandparents of these six children did not have cataract. This indicates that the second generation of this branch of the family was skipped. The age of the youngest of the children in this family to be operated upon was 7 years, the oldest 28, an average of 15 years plus. The average age of all the hereditary cataracts operated upon was 22 years.

It appeared for a while that these hereditary cataracts were not going to appear in the fourth generation, but last year one of the great-great grandchildren, a boy 28 years of age, came in and was operated upon for cataract in one eye. None has appeared so far in the other eye. So far as I know all the other cases have had both eyes involved and this one probably will have in time. Of the thirty-nine children of the fourth generation only this one has as yet had trouble; but most of them are yet quite young. Aside from cataracts, these people have good eyes. I know of only two or three of the whole number that have any other eye trouble and most of them have unusually good vision after the cataracts are removed.

The late Dr. John Green, of St. Louis, operated upon twelve of these people, but the earlier cases had senile cataract and are not included in this history. The late Dr. Ewing, of St. Louis, operated upon one. The late Dr. Howell, of Hannibal, operated upon one, my son, Dr. George Hornback, operated upon one, and one was operated upon by a physician in Michigan, I think, but do not know his name. The other twelve were operated upon by me in Hannibal.

As stated before, these people usually have quite good vision after the cataracts are removed. Most of the twelve that I have operated upon have obtained 20/20 to 20/15 vision. With two exceptions I have used the needle operation and I can say in passing that during the whole time of my eye work, which has extended over a period of thirty-five years, I have never opened an eyeball to let out the swollen lens substance after a needling.

I was taught in college and in the textbooks of that day, and I think it is largely taught today, that if there is a great deal of reaction after needling it is hazardous not to open the cornea at once and remove the lens substance. I have not done this in a single instance and have never had occasion to regret it though I have had very severe reaction in a few cases

with violent pain. With a sedative administered internally to relieve the pain and hot application (provided the pain comes on after thirty-six hours from time of operation) the disturbance has always quieted down and no ill effects have followed. I was also taught in college that it was not safe to operate by the needle method after the early teens, but now, especially in these hereditary cases we feel justified in needling even up in the late thirties.

I think needling much better than to take the added risk of infection that always accompanies the opening of the ball. My method for a number of years has been to open the anterior capsule with a small cross incision and pass the needle clear through the lens and posterior capsule. This causes the lens substance to absorb most rapidly from the center of the lens and gives direct communication between the chambers which I sometimes think helps keep down severe reaction. This method usually obviates the necessity of more than one needling. In fact, I seldom have had to needle more than once.

The passing of the needle through the center of the lens causes the lens to swell most here and in this way, separate more widely the opened anterior and posterior capsules in the middle where it will do the most good.

Most of these people aside from their cataract troubles are hardy and robust, rather longer lived than the average; at least one of the second generation entered her one hundredth year and I just learned of one now living in an adjoining county, doubtless of this family, who is one hundred years old.

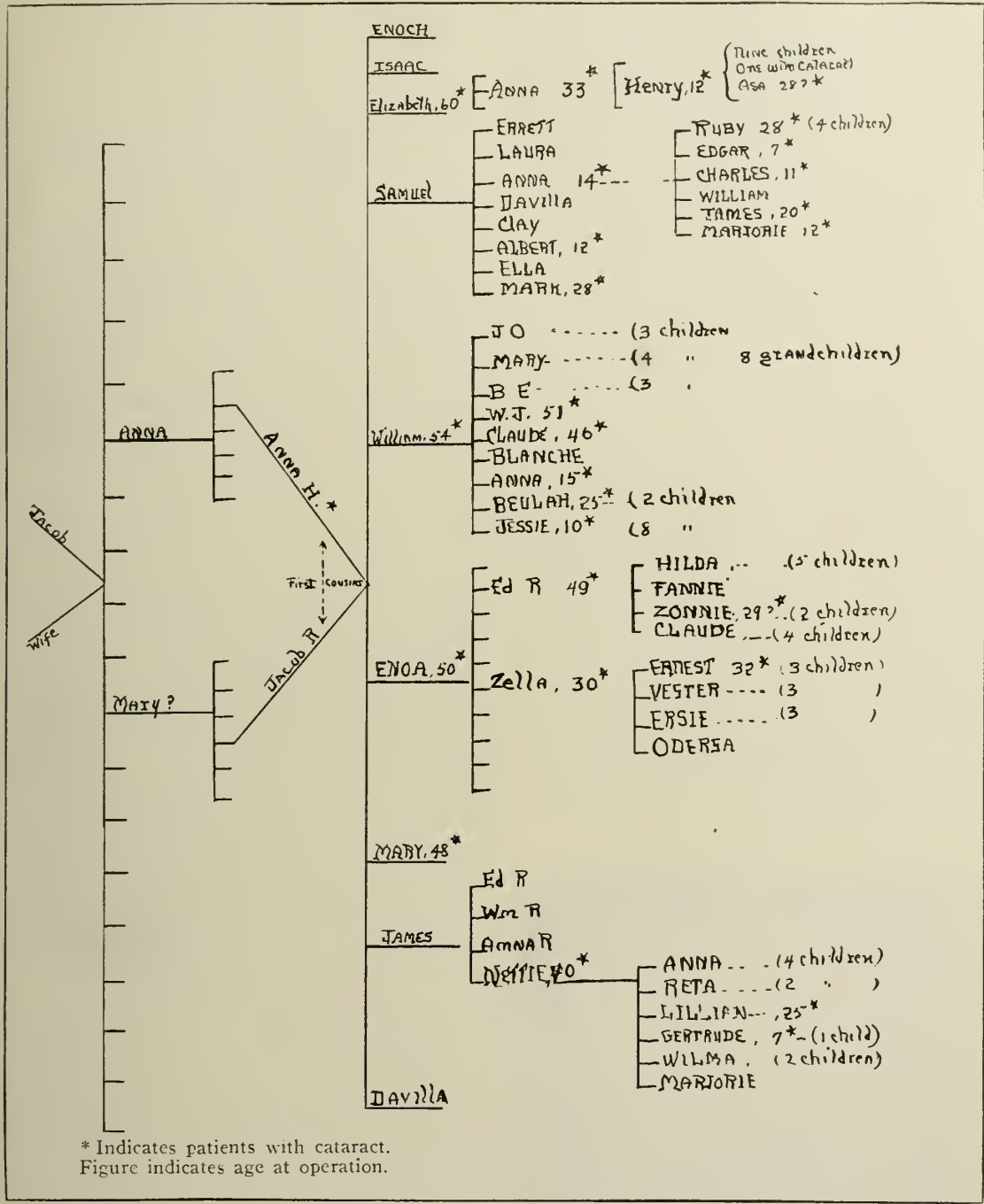
The subject of hereditary cataract seems to have had little attention in former years. In fact, such men as Fuchs and Yoyes do not mention it and I do not find it even in the complete works of Casey A. Wood.

There has been no case of congenital cataract among these people. Five years, I think, was the youngest in whom the cataracts formed and I operated upon them at seven years.

It has been stated that hereditary cataract is most apt to appear in the child-bearing period, but this doubtless does not apply as cataract appears at about the same age in both sexes. In this history most of them have been operated upon before reaching their thirtieth year and about one-third of them before reaching their teens. It has also been said that transmission is usually through the female but in this history it seems to be about equal.

A few words with reference to heredity in these cataract cases. Until the last three or four years we would have hesitated using this term for a topic. It was denied that we in-

Chart 1. Family Tree



herited any affliction but it was conceded that we inherited the "soil," as it were, that invited or predisposed to these things, which practically means the same thing.

The eye is the most inviting or practical part of the human body for a study of disease because we can look in through an open window and see what is going on. As you

know, there is contained within the structure of the eye a portion of every general system in the body except the osseous. Therefore, what an opportunity! Some one has termed the eye "The bulletin board of diseases of the brain and spinal cord." Yes, it is even more. We are glad to know that most of the first-class medical schools are recognizing the im-



portance of having the student familiarize himself with the use of the ophthalmoscope.

Dr. LeRoy H. Sloan,<sup>1</sup> of Chicago, touches on heredity and mentions the unusual work of Maud Slye at the University of Chicago. She has been working for many years on the relationship of heredity to the appearance of cancer in mice and that after many years of work, using seventy-five thousand mice, she is now able to predict when and where cancer will appear in her mice and that it follows Mendel's law. This law, as you know, is to the effect that the offspring is not intermediate in type between its two parents, but partakes largely of one or the other and that while the characteristics of one parent may be suppressed almost entirely, yet those characteristics will probably show very prominently in the next generation. This has been very true in this hereditary cataract history. It has skipped an individual family and then was very pronounced in the next generation.

The eye, once in a great while, shows a very interesting and peculiar exception to Mendel's law in that you will see in the same individual one blue eye and one gray eye, or some other color, but always the colors of the parents' eyes. Possibly the father's were blue and mother's gray, or vice versa. But these exceptions are rare. I have seen only two or three of them in my whole practice. They show what a splendid opportunity the eye supplies for studying the human anatomy both in health and disease.

500 Broadway.

#### DISCUSSION

DR. HAROLD SWANBERG, Quincy, Illinois: I think Dr. Hornback might be interested in an incident in my own family. I have a sister who, when she was about ten years old, discovered a cataract in her eye. She married and the first child when at about three years of age began to complain of poor vision. He was taken to an oculist and cataract was found. She has had two children since then, the oldest now seven, and all three children have cataract. There is no other history of cataract in our family so far as we know. Neither my father nor my mother ever wore glasses, but these three children all have congenital cataract.

DR. E. T. HORNBACK, in closing: I would like for Dr. Swanberg to follow the history of those children for the next hundred years.

DR. J. B. STOKES, Harwood: I would like to ask if there was any abnormal pigmentation of the eye. Also the age of the youngest child in which cataract was found.

DR. HORNBACK: I believe the youngest child was five years old. There was no pigmentation in the eye.

## PHYTOBEZOAR (Diospyri Virginianae)

### REPORT OF FOUR CASES IN MISSOURI\*

PAUL F. COLE, M.D.

SPRINGFIELD, MO.

The motives that prompt me to report these cases of phytobezoar are: (1) A search of the American and British literature reveals only fifteen cases reported to date. (2) Ninety-two per cent of the cases have been operated upon without a correct diagnosis having been made notwithstanding that a careful roentgen ray examination and a good clinical history should establish a preoperative diagnosis in almost 100 per cent. (3) The syndrome is similar to that observed in many other cases of gastric disturbance but this does not lessen the importance of the symptoms when a case is presented for differential diagnosis. (4) The geographic location of Missouri is almost in the heart of the district where logically cases of phytobezoar would be found.

Historically, according to Balfour and Good,<sup>1</sup> the word "bezoar" derived either from the Arabian "badzehr" or from the Persian "pad zahr," signifying counterpoison or antidote, is a term applied to any of various concretions found in the intestines and stomach of both man and animals. Bezoars were known as early as the twelfth century B. C. and were highly prized as remedies against poisons and pestilential diseases. Worn as charms they supposedly would protect one from all evil. Even up to the eighteenth century A. D. bezoars enjoyed almost universal confidence as remedies, and both the tincture and pulvis bezoardious occupied a prominent place in materia medica. They were more precious than gold and flagrant counterfeits were made. In order to save the public from deception Lonicer, in 1582, make known some simple tests for detecting fraud, viz: (1) If a hot needle be inserted into a true bezoar there would be no smoke; (2) if a poisoned man or beast be given a powder prepared from a bezoar and should survive the bezoar was genuine; (3) if a sample of a true bezoar were mixed with water or saliva it would color cloth.

Bezoars of olden times probably were derived solely from animals, for instance sheep and goats. Fine distinctions were made between oriental and occidental bezoars. The oriental contained cholesterin, bile pigments and bile salts, and on combustion diffused an

\*Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

1. Balfour, D.C., and Good, R. W.: *Am. J. Surg.* 6:579, 1929.

1. Sloan, LeRoy H.: *Progress in Medicine, Internat. J. Med. & Surg.* 43:193, 1930.

aromatic odor and left no residue; the occidantal contained calcium and magnesium and on incineration left a residue. A comparatively recent type of bezoar is the so-called madstone. A daily newspaper in Springfield, Missouri, under the date of December 7, 1929, contained the following advertisement: "For Sale. Madstone. Large enough for two," which shows that the bezoar or madstone after more than three thousand years still holds some charm in modern civilization.

The most common type of bezoar found in man is the trichobezoar, or hairball, of which large numbers of cases have been reported. Trichobezoars are found most often in women and young girls. Upon questioning them the majority will positively deny chewing the ends of the hair. Another type is the trichophytobezoar which consists largely of a mixture of hair and vegetable fiber.

A third type, the phytobezoar, of which I wish to speak specifically, is limited to the report of fifteen cases, to which I wish to add four from Missouri. It consists almost wholly of the fruit of the *Diospyros virginiana*. This tree and its fruit were described by De Soto in 1539. At a much later date John Smith in writing on the resources of the new world devoted a long chapter to the description of the tree and its fruit. It was known at Jove's fruit,—a food fit for the gods. In America the fruit is known by its Indian name, persimmon, and from a survey of the horticultural map of the United States I find that Missouri is almost in the heart of the persimmon zone and therefore we should expect to find such cases in our immediate vicinity. The persimmon has more than 14 per cent gums and pectin which aid in the cohesion and formation of a compact mass when ingested into an empty stomach.

The diagnosis of phytobezoar should be easily made by a fluoroscopic examination and a carefully taken clinical history. It appears, however, that such is not the case as a review of the literature shows the condition is often diagnosed as floating kidney, carcinoma of the stomach, movable spleen, polyp, adenoma, and most common of all gastric ulcer.

To further impress you with the importance of this condition I wish to mention the scantiness of the literature on the subject. You will not find it mentioned in a single textbook in your library and only one of our recent systems of medicine takes cognizance of the condition. In these reports I would have you carefully note the similarity of symptoms and the wide variety of diagnoses.

#### REPORT OF CASES

Case 1. The first case coming under my own observation was of Mrs. M., aged 52. On December 16, 1922, she was seized with epigastric pain, nausea, vomiting and retching which continued at intervals for four or five days. A diarrhea ensued the movements containing blood. She had a sense of fullness in the stomach with bloating and she lost weight. She consulted Dr. R. W. Hogeboom who said the patient looked thin and emaciated, had a rapid pulse, slight elevation of temperature, frequent bowel movements containing blood, and blood was found in stomach contents.

Patient was referred to me for roentgen ray study. Under screen examination the barium meal entered the stomach in normal manner. There was an area of decreased density in the pars media of the stomach and a deformity characteristic of gastric ulcer was observed. The shadow of decreased density was thought to be due to food remnants from a previous meal. Roentgen ray diagnosis was gastric ulcer. The clinical history at this time had not brought out the fact that the patient had eaten persimmons five weeks previously.

Operation revealed an ulcer on the posterior wall of the lesser curvature of the stomach. In addition to the ulcer two large bezoars composed wholly of persimmons were found in the stomach. The time which elapsed between the date of eating the persimmons and the operation was five weeks. The patient made an uneventful recovery.

Case 2. The report on this case was furnished by Dr. R. A. Woolsey, St. Louis. Boy, R. E., aged 7, had a mass that was definitely outlined in the region of the stomach. He had persistent vomiting for five weeks with considerable loss of weight. The mass had been discovered four weeks before admission into the hospital and had not changed in size. Two weeks before admission he began to have distention of the abdomen and swelling of the feet and the superficial veins of the abdomen were slightly engorged. General examination was otherwise negative. A gastrotomy was done and the mass removed.



Fig. 1. Phytobezoar removed in two sections from stomach of Case 1. A gastric ulcer, indicated by arrow, was also found and successfully removed.





Fig. 2. Phytobezoar as it appeared under screen examination in stomach causing displacement of barium meal.

It measured  $4\frac{1}{2}$  inches long by  $1\frac{1}{2}$  inches wide. Recovery was uneventful.

On section the mass was found to be composed of the skins and pulp of persimmons. After these findings the patient was questioned and gave a history of having eaten a large number of persimmons on the afternoon of the day before his attack of nausea but did not tell his parents for fear of punishment. The time that elapsed from the date of eating the persimmons until the operation was performed was five weeks and three days.

For the following two cases I am indebted to Dr. Frank G. Nifong, Columbia, Missouri, W. C. L. and W. E. L., bachelor brothers, farmers, living near Columbia, aged 75 and 66 respectively, who were both fond of persimmons which grew in abundance on their farm.

Case 3. W. C. L. came under observation in July, 1919. His trouble had begun with abdominal pain six days before entering the hospital. The diagnosis was appendicitis. Dr. Nifong reported obstruction of the bowels following his examination. The operative findings were small intestines dark and deeply injected and distended with gas. About 24 inches above the ileocecal valve a mass as large as a walnut was felt, obstructing the ileum. The mass was removed and found to be composed of persimmon seeds.

Case 4. W. E. L., the brother, entered the hospital, August, 1922. His trouble had started two days previously after eating a hearty breakfast. It began with much abdominal pain and vomiting at frequent intervals. Physical examination showed the abdomen rigid, especially on left side, distended and tympanitic all over. No peristaltic waves were visible. At operation a large hard mass was found in ileum. The mass was composed of persimmon seeds and pulp.

An interesting point about cases 3 and 4 is that one occurred in July the other in August, a period that is several months removed from the time when we would expect to see cases of phytobezoar since persimmons ripen in the late fall.

Outen, in 1894, reported the case of a man 57 years of age who had eaten persimmons and bread in 1891. Some hours later he ex-



Fig. 3. Phytobezoar almost filling stomach of patient aged seven years. Removed with uneventful recovery.

perienced nausea and vomiting and was sick for ten days. He was hospitalized for nausea and tumor of the stomach. Diagnosis was floating spleen. Two months later he was operated on in another hospital. Two bezoars were removed. Ten months had elapsed since the time the persimmons were eaten.

Peple, in 1922, reported a case in a man 52 years of age. The symptoms were epigastric pain, nausea, and a lump in the stomach. The patient had eaten persimmons forty days before. Roentgen ray diagnosis was polyp. A bezoar was removed.

Hart, in 1923, reported the case of a man aged 54 who had eaten persimmons in October, 1918, and six hours later suffered from vomiting, paroxysms of great pain and diarrhea. Roentgen ray diagnosis was pyloric obstruction. At the operation a foreign body composed of persimmon skins and seed was removed. Duration of time from the eating of persimmons until operation was four months. Patient died of peritonitis.

A case was reported by Hart in 1922. The patient ate persimmons and cranberries and four hours later had severe epigastric pain and nausea. The pain lasted for three or four days. Roentgen ray diagnosis was foreign body in the stomach. The time which elapsed between eating of persimmons and removal of tumor was five weeks. Recovery was good.

Another case reported by Hart was of a man 40 years of age who had eaten a large quantity of persimmons and soon after developed considerable epigastric pain. He induced vomiting which gave him relief. No preoperative diagnosis was made. At operation a bezoar of persimmon seeds and skins was removed from the stomach. Seven days had elapsed in this case between the eating of persimmons and operation.

Another patient, aged 53, on November 3, 1919, had eaten an unripe persimmon, and half an hour later had eaten two apples. Two hours later the patient had epigastric pain, nausea, and vomiting which lasted for about



Fig. 4. Cross-section of phytobezoar composed entirely of persimmon seeds and skins. It measured  $13\frac{1}{2}$  cm. long, and 5 cm. in diameter.

two weeks. He then had constant pain when the stomach was empty. No preoperative diagnosis was given. Gastrotomy was performed January, 1920. A bezoar of persimmon seeds and skins was removed. Eighty-one days had elapsed between eating of persimmons and the operation. Patient recovered.

Another case reported by Hart in November, 1921, was of a man who had eaten heartily of persimmons and in the night had been awakened by severe epigastric pain and nausea accompanied by vomiting of considerable blood. Clinical and roentgen ray diagnosis was gastric ulcer. A bezoar of persimmon seeds was removed at operation. The period of time between eating of persimmons and the operation was nine months. Recovery was uneventful.

Another man under Hart's observation, aged 53, in November, 1920, had eaten persimmons. Soon he felt sick. Purging did not relieve the pain which lasted for four or five days. He entered a hospital in 1922. Clinical and roentgen ray diagnosis was ulcer on lesser curvature. Patient was dismissed January 18, 1922. In February, 1923, he had sudden severe epigastric pains. Diagnosis was intestinal obstruction and at operation a foreign body was removed from the small bowel. It was composed of persimmons. Two years, two and a half months had elapsed between eating persimmons and the operation. Patient died.

Upson, in 1925, reported the case of a man 42 years of age. He gave a history of indigestion for five years. For a few months he had had gnawing, burning pain three or four hours after eating and gas in stomach. The pain was relieved by taking food. At operation a bezoar composed of fruit with persimmon seeds in the center was removed. Recovery was uneventful.

Porter and McKinney, in 1926, reported a case of a man 35 years of age with a history of thirteen months of epigastric distress. In 1924 he had eaten freely of persimmons. A few hours later epigastric pain, nausea and vomiting occurred lasting for one week. Di-

agnosis was ptomaine poisoning. He had been temporarily relieved by taking food and water. Roentgen ray diagnosis was foreign body in stomach. The duration of time from eating persimmons until the discovery of the tumor was thirteen months.

Larimore, in 1927, reported the case of a man 23 years of age who had eaten persimmons one year previously. More or less constant epigastric distress had followed. Taking of food gave some relief. He had persistent belching. At operation a bezoar of persimmon residue was obtained. Recovery was uneventful. One year had elapsed in this case between the eating of the persimmons and discovery of tumor.

David, in 1928, reported the case of a woman aged 59. She had a history of constant epigastric pain for one year, worse at night. Eighteen months before, while on a visit in central Illinois, she had eaten persimmons. From that date she had had trouble. Roentgen ray diagnosis was penetrating ulcer, probably malignant. At operation a bezoar composed of persimmon seeds was removed. There was a large penetrating ulcer. Death occurred five days later. Eighteen months had elapsed from the time of eating the persimmons to the time of the operation. So far this is the only other instance of phytobezoar found in a woman.

Maes, in 1928, reported the case of a man aged 57. Following the eating of persimmons and drinking of water he developed acute cramp-like abdominal pain. These attacks continued at intervals of two or three weeks. Morphine was required for relief. Roentgen ray diagnosis was probable phytobezoar. At operation a phytobezoar was removed. The time between the eating of persimmons and that of operation was not given. Recovery was uneventful.

Garrett, in 1928, reported a case in a man of 42 years who said he felt as though there was a lump in his stomach. Roentgen ray examination revealed an area of decreased density which could be freely moved to any part of the stomach. The patient had eaten freely of persimmons while hunting eight months before. Diagnosis was phytobezoar. A gastrotomy was performed and a bezoar removed. Convalescence was uneventful.

One other case reported by Upson is that of a patient who was an excessive chewer of tobacco. A phytobezoar about the size of a hen egg was removed from the stomach. It was composed of vegetable fiber. In the very center a single persimmon seed was found. The



time from eating the persimmon to date of operation was not given.

#### SUMMARY

1. For twelve cases in which the time is mentioned the average time from the eating of persimmons until the patients came to operation is thirty weeks.

2. Ninety-two per cent of the cases came to operation with a mistaken diagnosis.

3. On the other hand, 100 per cent should have been correctly diagnosed by a careful roentgen ray examination and an accurately taken comprehensive clinical history.

4. Physicians, especially in Missouri and adjoining states, should inform the public of the danger of eating persimmons that are not fully ripe, and then they should not be taken into an empty stomach.

5. No doubt many deaths, of which we have no record, have been due to this type of bezoar.

600 Medical Arts Building.

### SOME PROBLEMS IN THE DIAGNOSIS AND TREATMENT OF THE AGED\*

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The material upon which this paper is based comprises a group of 142 individuals residing at the Confederate Home of Missouri, Higginsville, ranging in age from 80 to 102 years, an average age of 87.6 years, all of whom have been under my constant care and medical supervision for a period of three years. These people are under semimilitary control which makes possible the early detection of illness and immediate hospitalization.

My contact and study of these aged people during this time have caused me to modify very materially some of the opinions that I formerly held and as a result of the records that I have made during this time I find that I have formed numerous impressions which will have to be further revised.

I have repeatedly attempted to secure some help from the medical literature on the subject of the aged but I find it woefully scant, and the texts are silent on the subject except for the brief reference to the thought that diseases in the aged are apt to be symptomless and obscure. I have therefore been left only with my own impressions gained as a result of my contact with these old people, a report of which I feel may be interesting.

In attempting to convey these impressions I am confronted with the realization that I can only touch on a few of them, and that any detailed report on the subject would be more lengthy than it is possible even to outline in my allotted time. I append no bibliography for the reason already stated that there is practically no literature on the subject. Laboratory and other than the ordinary bedside observations have been omitted.

At this period of life we have to deal with retrogressive changes at their peak; most or all of the endocrines have atrophied and ceased to function, the hematopoietic system is easily exhausted, the cardiac, digestive and excretory functions are at low ebb and as a result resistance is reduced, reactions are poor and infection even of a low type finds little opposition. It is not surprising therefore that altered function with rather marked physical signs is present and that conditions may be diagnosed which are not the result of the particular illness under consideration, but which have existed in the individual while he is in his usual state of health and may be chronologically normal for him. Keeping this fact in mind is important and will obviate many immature diagnoses. However, it is also true that many of these patients die of apparently simple causes without alarming symptoms, but autopsy reveals marked changes that escaped the most careful examination.

I desire to direct your attention to some of the physical signs frequently found in aged folks who are in their usual state of health, eating, sleeping and exercising in their accustomed manner, but which are often interpreted in the light of an acute pathological condition and, considered thus, are likely to influence us in a diagnosis that is erroneous. That these signs are not the result of the complaints of the individual is often hard to realize. But whether to ignore them or give them credence leaves the inexperienced in a state of uncertainty, and I may add that often I am quite undecided as to their significance.

In a routine examination of 66 well individuals especial note was made of the presence or absence of dyspnea, pulmonary rales, edema of the extremities, cardiac enlargements, irregularities and murmurs, and signs of pulmonary emphysema, all of sufficient intensity to cause confusion in diagnosis if the patient were taken acutely ill and seen for the first time. Blood pressure readings have also been taken in every case and are interesting.

Of the 66 thus examined, dyspnea either marked or evidenced on moderate exertion was present in 23, or 37 per cent; rales, sharp and crackling enough to indicate or confuse the

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-13, 1930.

picture of an early pneumonic process, were found in 19, or 28 per cent; emphysema, of sufficient extent to make the location of the apex beat impossible by inspection or palpation, rendering the heart sounds muffled and distant and serving to defeat entirely the outlining of the heart borders, was present in 10, or 16 per cent. This would easily prevent the detection of a pericarditis.

Cardiac murmurs, some soft and blowing, others loud and rasping, in many cases widely transmitted but invariably systolic, were found at both the aortic and mitral areas. Without a history that is suggestive, these murmurs had best be interpreted in the terms of arteriosclerotic calcification of the aortic and mitral rings and leaflets, or as the result of an atheroma of the aorta and a part of the ever present and widespread arteriosclerosis. That they do however contribute to ultimate cardiac defeat is evident.

Cardiac irregularities were chiefly extrasystoles, often multiple, but at this period of life are of little significance. Partial heart block and auricular fibrillation were evident in only two cases but in each instance caused little disability at the time of examination.

Enlarged heart, with the apex one inch or more outside the midclavicular line, was present in 19, or 28 per cent. Many of these apparent enlargements however may have been due to displacement of the heart either from traction or as a result of the kyphosis and marked chest deformity which is so frequently met with at this age.

While these signs might properly be interpreted in the light of some abnormality, I believe that they should be considered as a result of disordered function incident to age and should not be accorded the same significance as if they had occurred in an individual several decades younger.

A knowledge of the frequency of the occurrence of these physical signs in individuals, normal in every way except for the disability incident to age, discounts their existence in an aged individual acutely ill and renders the diagnosis of cardiac and respiratory disorders difficult.

Blood pressures have varied within wide limits, far greater than the usual descriptions of arteriosclerosis would lead one to expect. Systolic pressures ranged from 116 to 220 and diastolic from 76 to 162. They apparently had but little effect on the welfare of the individual, nor have I found that they indicated the cases in which cerebral accidents occurred. The relation of blood pressure to the state of health and comfort in the aged has but little significance.

A reading of 220/110 was not associated

with dyspnea, irregularity, murmur, cardiac enlargement, cerebral or nephritic symptoms, while a reading of 116/72 was associated with murmur, partial heart block, some dyspnea and edema though not of sufficient extent to incapacitate the individual but significant of an impending myocardial failure. These abnormal yet normal findings in so large a percentage of cases make the interpretation of disease in the aged a real problem.

Frequently an old man with dyspnea, sharp rales and slight rise of temperature, and who looks extremely ill, will perhaps have some impairment of resonance and localized bronchial breathing, a nonproductive cough which later becomes mucopurulent, but will make an uninterrupted recovery; another, with identical signs, will pass rapidly into collapse with marked cyanosis and a spreading pulmonary edema which is fatal.

The fact that practically identical signs occur in fatal cases and in those that recover makes one hesitate to diagnose pneumonia in the aged.

In kyphosis with enough emphysema to produce hyperresonance, chest fixed and immobile, or chronic pulmonary congestion with sharp rales which may have existed for months or years, the detection of an early pneumonia taxes the diagnostic ability to the utmost.

Such being the signs in the aged individual who may or may not have some pathological condition, upon what signs and symptoms can we base a diagnosis that may be reasonably secure? I think more weight must be given to symptoms than to signs unless they tend to increase markedly from hour to hour.

Pneumonia in the aged is almost always an insidious process in its onset, the temperature may be only slightly elevated and is often normal, the physical signs indefinite and pain and cough infrequent. The most dependable signs and symptoms of pneumonia in the aged are quiet and rather suppressed breathing, especially over the bases of the lungs, often with little or no impairment of resonance but with early and rapid prostration, cyanosis of the ears, lips and finger tips, together with a marked increase of the respiratory and pulse rates.

While we have had many respiratory infections, that were anything but mild and a number that were undoubtedly cases of bronchopneumonia our low percentage of deaths from this source certainly contradicts Osler's statement that it is "the friend of the aged."

Perhaps the fact that all our respiratory infections, no matter how mild they may seem, are immediately confined to bed and vigorously treated, far earlier than is possible in private practice, may account for our low death rate from pneumonia. I am confident that many



cases do and will recover if promptly treated and that the usual gloomy prognosis is based on cases which are seen late and after the signs are well developed. Perhaps it would be well to outline the treatment that we adopt almost as a routine in all cases of respiratory infection, whether we believe them to be pneumonia or not, for we are frequently undecided early in the course of the disease.

The patient is immediately put to bed and kept warm. He is vigorously treated during the first 24 to 48 hours, for it is during this period that the fight will be either lost or won. Counter irritation is applied to the chest and a capsule is given containing, calomel, gr. 1/5; camphor, gr. 1/5; phenacetin, gr. 2; quinine sulph., gr. 2. These capsules are given at two-hour intervals for ten doses and within the hour after the last capsule has been taken we give 2 ounces of castor oil. If there is much dryness of the bronchi, steam inhalations of tr. benzoin compound (1 dram to the pint of boiling water) are administered at three-hour intervals. These seem to give great comfort to the patient and secure rest.

A mixture of ammonii chloridi, 8.00 gm., syr. acidi citrici, 30 gm., aquae, q. s., 90 gm., given in teaspoonful doses every 3 hours, tends to aid in the expulsion of the tenacious mucus, but all mixtures containing the nauseating expectorants or derivatives of opium are carefully avoided as adding to the anorexia and increasing the depression of the cough reflex.

If cardiac weakness is a prominent feature strychnine and caffeine are given in preference to digitalis; the administration of the latter I have had occasion to regret.

In the presence of marked pulmonary edema one may be tempted to give belladonna or its alkaloid, but it adds to the discomfort of the patient and I have never seen it do any good.

We always give catarrhal immunogens in our respiratory cases at 12 to 24 hour intervals, in increasing doses, and believe that we have seen good effects from them.

This has become our routine treatment, varied at times when unusual symptoms occur, and in the great majority of cases it has proved satisfactory. Overtreatment here as in all conditions of the aged is to be avoided. During the three-year period of these observations 186 patients were admitted to the hospital sufficiently ill to require close observation and during this period we have had 50 deaths. Of these 24, or almost 50 per cent, have been due to cardiovascular disease with myocardial failure, and only six deaths have occurred from pneumonia. This is in striking contrast to the number of deaths from pneumonia in private practice. Cerebral hemorrhage has accounted

for six deaths, four were due to pyelonephritis, two each to senile gangrene and malignant prostate. The other deaths were due to carcinoma of the esophagus and pancreas, chronic colitis, cerebral thrombosis and general septicemia.

Cardiovascular disease has caused the death of four times as many patients as pneumonia; and if we include the cerebral hemorrhages and senile gangrenes, as we should, six times as many.

Myocardial failure is perhaps just the natural end of the aged who happen to escape the infectious and malignant accidents. In the majority of cases it is easily recognized, presenting dyspnea, orthopnea, pulmonary congestion, progressive edema, often with accumulations in the pleural cavities and tending to be rapidly progressive. Muscular weakness, pallor, anorexia and rapid loss of weight argue a rapidly fatal termination.

In contrast, rather marked dyspnea, moderate edema, cardiac irregularities and some cardiac enlargement may be compatible with a fairly comfortable existence and prolonged life; it is indeed remarkable to note how long these individuals may live with rather marked cardiac symptoms.

Prognosis is the real problem, and depends very much upon how little the individual is disturbed in his routine and one's ability to prevent respiratory infections.

Treatment of these cases is difficult, if indeed treatment has really much influence on the course of the disease. It is a hard matter to stimulate such a heart to increased activity so the most rational thing to do is to reduce to a minimum the amount of work for an already overburdened organ.

Digitalis in the aged is a treacherous and often a dangerous drug, serving in most cases only to increase the extrasystoles or produce a block. Strychnine is much more serviceable and when combined with very small doses of digitalis seems to be of great benefit. Nitroglycerin serves to reduce the substernal discomfort and may be repeated often with advantage.

Anorexia, abdominal distention and intestinal stasis are frequent complaints in cardiovascular disease and are hard to correct. Edema sometimes yields to potassium iodide or theocalcin, the latter also serving to decrease the substernal discomfort. But I have had little success with the time-honored pill of calomel, digitalis and squill.

The outlook for cases with cardiac failure is not bright. Sometimes, however, the unexpected happens. I recall the case of a man 87 years of age who was suddenly seized with a

heart attack and a pronounced heart block. The pulse remained at 26 for three days, Adams-Stokes syndrome and a probable cerebral thrombosis with a definite hemiplegia which lasted for six weeks. He is alive and very comfortable and extremely active after three years.

Pericarditis and hydropericardium are frequent terminal conditions but may be impossible to detect in the presence of an emphysema. Gastro-intestinal disorders are the cause of many obscure complaints in the aged. We have seen marked mental symptoms simulating senile dementia but developing rapidly in an individual previously free from such symptoms, purely the result of intestinal stasis and rapidly relieved by a generous dose of castor oil. Fecal impaction often exists for some time without symptoms and be suddenly revealed by profound shock. Hemorrhoids that appear suddenly are a sign of impaction and demand a digital examination of the rectum.

Symptoms referable to the urinary organs are frequent in the aged but except for one condition do not merit attention in this paper. Quite often an old man who has had none other than ordinary frequency will, after a slight chilling or overindulgence in sweets, be suddenly seized with complete inability to urinate resulting in rapid and painful distention of the bladder, which sometimes rises almost to the umbilicus. Hot packs and other routine measures avail nothing. The catheter passes without obstruction with a free flow of urine and immediate relief. In a large number of cases the bladder resumes its function, further catheterization is unnecessary and the trouble does not return. In other cases the catheter must be used over a prolonged period but with ultimate resumption of function. Occasionally incontinence results.

Atony is the whole story. Strange to say, however, infection even on repeated catheterization seldom occurs. Irrigation is seldom necessary and in fact seems to prolong the disability. Ergot and strychnine seem to restore function in the shortest time.

Generally speaking, overtreatment of the aged is a common fault. Many of the conditions incident to age cannot be corrected and the general well-being of the individual is more often disturbed than enhanced by medicines. The old man who is getting on fairly well for his age should be given a lot of advice and but few drugs. Such an individual should be permitted to find his own level of activity and encouraged to accept the limitations that age imposes upon him but to which he is loath to become reconciled. The ambitious physician often hastens the end by attempting to restore the old man to a state of activity that is ren-

dered impossible by the degenerations incident to his senility. Better a half loaf than none at all.

In conclusion, I wish to mention my experience with prophylactic respiratory vaccines in the aged. I have administered them over a period of three years to one group while holding another group as a control. All these individuals live under exactly the same conditions, are subject to the same exposure and eat the same food. My experience with respiratory vaccines prompts me to abandon their use in the future.

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## SPECIAL ARTICLE

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### THE EFFICACY OF PYRIDIUM IN GONOCOCCAL URETHRITIS

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ST. LOUIS

Marked progress has attended our search for effective therapeutic agents in urologic infections. The selective action of bacteria, especially the cocci group, toward the newer synthetic dye antiseptics gives the most tangible basis for treatment. Whereas most of the dyes are useful only as topical applications, injections and instillations, one drug can be given per os and supplies antiseptic properties in the urine in sufficient strength to be of real clinical value. This drug is pyridium, an azo dye of the pyridine series, which colors the urine a yellowish red. In treating gonorrheal urethritis in the male two 0.1 gram tablets are given thrice daily by mouth. The data here presented represents an attempt to determine the efficiency of pyridium as an aid in the treatment of acute gonococcal urethritis, particularly as to the bacteriostatic and bactericidal action of a drug given by mouth. It will be noted that the course of the treatment was markedly lessened over the time needed with methods which we formerly used. The average duration of our control group was 109 days and for the pyridium group 71 days. Also, in our experience in these and other cases, the development of complications was demonstrated to be less frequent when pyridium was employed.

The group of cases tabulated includes 23 men who came under our care for an acute anterior urethritis of gonococcal origin. With a few exceptions, none of these men had had any previous venereal infection. In no instance had there been any treatment, local or otherwise, prior to their appearance in our office.



Table 1. *Average Duration of Control Group and Pyridium Group*

Case	Sex	Age	History Previous Venereal Infection	Diagnosis Present Infection	Predominating Organism	Complications Developed Dur- ing Treatment	Duration of Disease Prior to Treatment	Length of Treatment	Pyridium Used	Condition on Discharge	Final Tests Condition Six Months After Treatment
A	M	29	GC 7 yr ago	Acute ant. urethritis	Gonococci	None	28 days	48 days	No	Normal	Normal
B	M	21	None	Acute ant. urethritis	Gonococci	None	22 days	42 days	No	Normal	Normal
C	M	25	None	Acute ant. urethritis	Gonococci	Posterior urethritis and prostatitis	5 days	147 days	No	Normal	Normal
D	M	22	None	Acute ant. urethritis	Gonococci	None	5 days	85 days	No	Normal	Normal
E	M	21	GC 4 yr ago	Acute ant. urethritis	Gonococci	Chronic prostatitis	7 days	189 days	No	Normal	Normal
F	M	23	None	Acute ant. urethritis	Gonococci	Chronic prostatitis	19 days	145 days	No	Normal	Normal
1	M	19	None	Acute ant. urethritis	Gonococci	None	4 days	121 days	Yes	Normal	Normal
2	M	21	None	Acute ant. urethritis	Gonococci	None	7 days	43 days	Yes	Normal	Normal
3	M	23	None	Acute ant. urethritis	Gonococci	None	3 days	70 days	Yes	Normal	Normal
4	M	23	None	Acute ant. urethritis	Gonococci	None	3 days	62 days	Yes	Normal	Normal
5	M	22	None	Acute ant. urethritis	Gonococci	None	5 days	93 days	Yes	Normal	Normal
6	M	25	None	Acute ant. urethritis & alcoholism	Gonococci	None	14 days	119 days	Yes	Normal	Normal
7	M	16	None	Acute ant. urethritis	Gonococci	Acute epid- idymitis and prostatitis	6 days	52 days	Yes	Normal	Normal
8	M	22	GC 7 yr ago	Acute ant. urethritis	Gonococci	None	3 days	21 days	Yes	Normal	Normal
9	M	36	None	Acute ant. urethritis	Gonococci	None	2 days	42 days	Yes	Normal	Normal
10	M	34	GC 10 yr ago	Acute ant. urethritis	Gonococci	None	9 days	9 days	Yes	Normal	Normal
11	M	33	None	Acute ant. urethritis	Gonococci	None	8 days	68 days	Yes	Normal	Normal
12	M	25	None	Acute ant. urethritis	Gonococci	None	5 days	75 days	Yes	Normal	Normal
13	M	26	None	Acute ant. urethritis	Gonococci	Acute pos- terior ure- thritis	5 days	59 days	Yes	Normal	Normal
14	M	21	None	Acute ant. urethritis	Gonococci	None	6 days	111 days	Yes	Normal	Normal
15	M	25	GC 8 yr ago	Acute ant. urethritis	Gonococci	None	8 days	83 days	Yes	Normal	Normal
16	M	48	GC 8 yr ago	Acute ant. urethritis	Gonococci	None	9 days	84 days	Yes	Normal	Normal
17	M	22	None	Acute ant. urethritis	Gonococci	None	5 days	94 days	Yes	Normal	Normal

All the cases were given practically the same local treatment.

The first group consists of six representative cases picked at random in which local treatment only was used. The second group consists of 17 cases in which, in addition to the usual local treatment, pyridium by mouth was administered as suggested by the manufacturer, namely, two 0.1 gram tablets three times a day.

In all the cases the duration of treatment represents the time elapsing between the first treatment and that day on which all discharge ceased, leukocytes were not present in a microscopic examination of the urine, gonococci were no longer demonstrable and the prostatic secretion showed no pus microscopically. Furthermore, the patient had previously been allowed to discontinue all local injections and to lead a normal existence with no restrictions of any

sort in his activities; that is to say, at this time he was told that to all intents and purposes he was free of his infection. As a safeguard, however, each of the individuals reported once a month for a period of six months at which time his urine and prostatic secretion were checked carefully for any reappearance of infection. The cases grouped in this study represent only those patients who cooperated fully with us up to and including this six months' period of observation after their infection was apparently cured.

It is extremely difficult, I realize, to control the gonorrheic patient's activities outside the few minutes a day when he is present in the office. Sexual excitement, physical exertion, improper diet, alcohol and worry affect such an individual tremendously. Probably those who follow instructions implicitly in such matters are

few. Those who say they do but in reality do not are numerous, no doubt, and these latter make it difficult to evaluate any particular procedure employed in treating the gonorrhea. As nearly as possible, however, the 23 men grouped in this series were under our control from the beginning to the end of their infection and to that extent the conclusion arrived at would seem useful.

The local treatment prescribed was the injection of one quarter ounce of one half per cent silver proteinate, strong, twice a day, the injection to be held five minutes. This was occasionally varied by the substitution of 10 per cent lunasol or 10 per cent silver nucleinate, mild, as the injecting solution. Prostatic massage and posterior urethral instillations of 1 per cent silver proteinate, strong, were used late in the course of the infection if a prostatitis and posterior urethritis occurred. In addition, alcoholic beverages and sexual excitement were prohibited. The diet was not limited except to caution the individuals against the ingestion of highly spiced foods. All the patients were warned against severe physical exertion in the early stages of the infection.

The number listed is small, due in part to the fact that only private patients of an intelligent class are included in the group. Even in such a group, where one would expect to have the fullest cooperation from each individual, on frequent occasions the patient chose to consider himself well before successive steps in the established routine had been completed. Such an individual could not properly be included in the series if proper check on the pyridium and control cases was to be had.

It will be seen from the data presented in Table 1 that the average duration of the control group was 109 days, while the average duration of the group on pyridium was 71 days. These figures are not presumed to be exceptionally low for the method of treatment employed, nor do we wish to extol of the virtue of this manner of procedure over others in use. They do, however, mean this to us, namely, that when we supplemented our usual method of handling an acute gonorrhea with the administration of pyridium by mouth, the average duration of the infection was materially shortened. It would, therefore, seem plausible to expect other methods in use to be similarly aided by the employment of pyridium orally administered.

It may be noted, also, that in the two groups presented, there was a marked decrease in the frequency with which posterior urethritis and prostatitis developed in the pyridium group. While the series is much too small to warrant very accurate conclusions in this regard, our impression, based on these cases and others not included for one reason or another, is that complications do not occur so frequently where pyridium is used.

3701 Westminster Place.

#### INDICATIONS FOR AND RESULTS OF CONSERVATIVE OPERATIONS OF KIDNEYS

Waltman Walters, Rochester, Minn. (Journal A. M. A., Nov. 1, 1930), reports a sufficient number of successful cases of conservative renal pelvic resection for hydronephrosis and heminephrectomy to emphasize the value of conservative operation in such cases rather than nephrectomy, provided a sufficient amount of normal renal parenchyma remains. The beneficial effects of simple ligation and division of anomalous renal vessels which obstruct the uretero-pelvic juncture and produce hydronephrosis are emphasized. Renal or ureteral calculi will often produce enough disturbance of renal function to lead to an erroneous assumption that the kidney may be partially or even totally destroyed, but that such is not the case is evidenced by satisfactory function of the kidney after the removal of as many as eleven stones, or of a staghorn stone filling the pelvis and calices. Seriously injured kidneys, containing calculi, may show remarkable restoration of function following the conservative operation of pelvolithotomy.

#### BRAIN ABSCESS

Among the twenty-eight cases of brain abscess reviewed by C. C. Coleman, Richmond, Va. (Journal A. M. A., Aug. 23, 1930), choked disk occurred with about the same frequency as in brain tumor. In ten cases of frontal lobe abscess, choked disk was present in seven. Of the twelve temporal lobe abscesses there were seven cases with choked disk. The disks were normal in the three cases of right parietal abscess, and in the three cases of cerebellar abscess the disks were slightly blurred before operation in two, and were normal in one case until some weeks after the operation, when papilledema developed. The ocular muscle palsies are of little importance in the series. In one frontal and two temporal lobe abscesses with considerable papilledema, bilateral paralysis of the external rectus was found, but this is also a common finding in high intracranial pressure from tumor. A right ptosis in one frontal lobe abscess was observed, and a dilated, fixed pupil in another patient was found, with an abscess in the same location. Right ptosis developed in a patient with an abscess of the right lobe of the cerebellum. The results of operation in this series of twenty-eight cases, while generally satisfactory, were disappointing in some instances. The patients who recovered appear to be normal in every respect. The freedom from convulsions or mental impairment after recovery from the abscess is worthy of note. If the abscess is so located as not to endanger certain important functional areas, the late residuals are likely to be few and unimportant.



# THE JOURNAL

OF THE

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MARCH, 1931

## EDITORIALS

### STATUS OF BILLS IN THE LEGISLATURE

Several bills have been introduced in the 56th General Assembly now in session at Jefferson City which affect us as practicing physicians or as guardians of the public health. These bills have been closely watched by our Committee on Public Policy but none of them has yet reached the stage when it would be necessary to invite the cooperative activity of the members of the Association as a whole.

The most important measure that interests us is Senate Bill No. 222 prepared by our committee and introduced in the Senate by Senator Joseph H. Brogan, of St. Louis, on February 12. This bill amends the workmen's compensation law by increasing the amount of money that may be expended in the care and treatment of an injured employee for all services including the fee of the surgeon from \$250 to \$750 and lengthens the period of time during which this sum is to be spent from 60 days to 90 days. The bill also empowers the Workmen's Compensation Commission to order additional treatment found by the Commission to be necessary after the 90 days have expired over any period of time by eliminating the words "for one year from the date of injury."

It has been found that the limitation of \$250 has worked a serious injury upon physicians and surgeons because that sum of money is very frequently exhausted by other items necessary to be paid for in the care and treatment of the injured person before the fee of the physician or surgeon is paid, hence that fee remains uncollectible.

The extension of the sum from \$250 to \$750 is not an additional burden upon the employer because the insurance carriers are now giving the insured employer full coverage. This does not however protect the physician or surgeon because the law prohibits the payment of more than \$250 within the first 60 days.

S. B. No. 222 was referred to the Committee on Insurance on February 12 and reported out by that committee on February 18 with the recommendation that it Do Pass. It is now on the calendar for engrossment. No objections were raised at the committee hearing against the passage of the bill. Drs. W. L. Allee and A. R. McComas appeared before the committee and spoke in favor of its passage.

The companion bill to S. B. No. 222 is House Bill No. 403 introduced by Dr. W. P. Smith, of Troy, and Mr. A. R. Hammett, of Moberly. It is on the Calendar for engrossment.

A freak bill was introduced by Mr. Barken, of St. Louis County, and Mr. Presley, of Dallas County (House Bill No. 220), which gives banks and trust companies the right to practice medicine and operate beauty parlors without obtaining a license. It was referred to the Committee on Banks and Banking on February 3 and promptly reported out on February 4 with the recommendation that it Do Not Pass.

A vicious measure was House Bill No. 302 introduced by W. C. Ploeser, of St. Louis County, L. C. Hehl, of St. Louis City, L. G. Smith, of Lebanon, and C. H. Goener, of St. Louis City, making vaccination or inoculation noncompulsory in the public schools, colleges and university. The bill was referred to the Committee on Public Health and Scientific Institutions and promptly reported out Do Not Pass.

House Bill No. 406, introduced by Mr. Heege, of St. Louis County, amends the law providing for the issuance of bonds to establish county hospitals for the care and treatment of pay patients under the provisions of Article 5, Chapter 15, Revised Statutes of Missouri, 1929. The supporters of the bill believe its passage is necessary in order to provide a method for admitting poor persons to a county hospital erected under the provisions of Article 5, Chapter 15, Revised Statutes of Missouri, 1929. It is said that without this provision such hospitals will be limited by law to the care and treatment of pay patients. The St. Louis County Hospital was built under this statute and will be governed by the county court and not by a board of trustees. We understand that the other county hospitals in the state—Audrain, Boone and Callaway counties—were established under the provisions of Article 4, Chapter 120, Revised Statutes of Missouri, 1929, which provide for the admission and care of poor persons and places the control of the institutions under boards of trustees. If this interpretation is correct then House Bill No. 406 will apply only to the St. Louis County Hospital and not have any effect upon the conduct and management of the other county hospitals.

A bill has been introduced at the request of the State Board of Health (Senate Bill No. 180, House Bill No. 126) giving the Board of Health the right to issue a birth certificate by affidavit to persons born before the vital statistics law became effective. There is great need for a provision of this kind because so many persons born before the registration of births was in effect are put to great inconvenience, to say the least, when brought in contact with a condition that requires them to establish the date and place of their birth.

Physicians along with all other citizens will be affected by the bills to increase the state revenue by compelling them to pay a license fee or occupational tax. Whether the proposed increase in taxation becomes a law or not the fact that it is before the General Assembly will probably mean delay and confusion in the passage of numerous other measures.

The Committee on Public Policy will endeavor to keep the members fully informed on the progress of bills that affect the medical profession.

## PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

At the Hannibal session in 1930 several amendments to the Constitution and By-Laws were proposed which had to be carried over for one year in accordance with the provisions of our Constitution and By-Laws. The amendments follow:

Amend Article IX, Section 1, of the Constitution, by adding after the word "President-Elect" in the second line, the words "three Vice Presidents," so that the Section shall read:

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors, more or less, as shall be determined by the House of Delegates from time to time.

By having vice presidents we create offices which can be filled by worthy members entitled to recognition and at the same time preserve the integrity of the succession of the president-elect to the presidency. In the absence of vice presidents the president-elect would succeed to the presidency, should that office become vacant between meetings, and thus leave the office of president-elect vacant.

Amend Chapter V, of the By-Laws, by adding a new section, to be known as Section 2a, as follows:

Section 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the president, the Council shall select one of the vice presidents to succeed him during the unexpired term.

This amendment provides for the duties of

the vice presidents and for a successor to the presidency should that office become vacant between sessions.

## ARRANGEMENTS FOR THE JOPLIN SESSION

The Local Committee on Arrangements for our next Annual Meeting to be held in Joplin, May 11, 12, 13, 14, 1931, has made considerable progress toward final plans for entertaining the Association. It has already been decided that the Connor Hotel will be the headquarters and that all meetings will be held on the Connor Hotel roof. Those members who attended the session at Joplin in 1923 will recall the splendid facilities that this room offers for holding our meetings, although at the 1923 meeting the sessions were held in the Scottish Rite Cathedral. The principal entertainment, however, was a ball given on the Connor Hotel roof. This hall is large enough to accommodate all our scientific sessions, the meetings of the House of Delegates, and the exhibits.

The preliminary arrangements indicate that the Jasper County members will provide an entertainment for Monday night, an open meeting on Tuesday night to hear the address of our President and our guests, and a buffet luncheon and vaudeville on Wednesday night.

There will be sight-seeing trips during the daytime when the Association is not in session to give members a view of the scenic grandeurs of Southwest Missouri.

In anticipation of a large number of members going to Joplin in motor cars, the Local Committee on Auto Transportation has made arrangements with several garages to make a uniform charge for parking machines. Attendants will be provided by the Auto Club at the Connor Hotel or the garages to take the cars to the garage and bring them to the hotel at the pleasure of our members. The names of the garages follow:

GARAGE AND ADDRESS	RATE PER NIGHT
Elk Garage, 5th and Pearl Sts.	50 cents
Motor Port Garage, 2nd and Wall Sts.	50 cents
Norton Motor Co., 520 Wall St.	50 cents

The personnel of the Committee on Arrangements follows:

### GENERAL COMMITTEE ON ARRANGEMENTS

Dr. R. M. James, Joplin, Chairman; Dr. W. M. West, Monett; Dr. Guy Titsworth, Sedalia.

### LOCAL COMMITTEE ON ARRANGEMENTS

Dr. O. T. Blanke, Joplin, Chairman; Drs. Ed. James and B. E. DeTar, of Joplin.

Committee on Entertainment: Dr. J. Albert Chenoweth, Joplin, Chairman; Drs. L. B. Clinton, M. O. Coombs, W. H. Mallory and A. B. Clark.

Committee on Reception: Dr. Leroy W. Baxter, Joplin, Chairman; Drs. H. A. LaForce, H. A. Leaming, W. B. Post and R. M. Stormont.



Committee on Hotels: Dr. H. L. Wilbur, Joplin, Chairman; Drs. V. E. Kenney, J. L. Sims and C. G. Martin.

Committee on Golf: Dr. A. M. Gregg, Joplin, Chairman; Drs. E. R. Hornback and M. O. Coombs.

Committee on Registration: Dr. A. Benson Clark, Joplin, Chairman; Drs. E. J. Burch and J. E. Douglass.

Committee on Auto Transportation: Dr. H. D. McGaughey, Joplin, Chairman; Drs. A. M. Gregg, B. E. DeTar, D. R. Hill and K. B. Huffman.

Committee on Exhibits: Dr. Paul W. Walker, Joplin, Chairman; Drs. Roy Myers and S. A. Grantham.

Committee on Publicity: Dr. J. W. Barson, Joplin, Chairman; Drs. C. M. Balsley and G. I. Meredith.

## HOTELS AND RATES AT JOPLIN

Reservations for hotel accommodations at Joplin should be made in advance of the meeting. Members are urged to communicate with the hotels direct and mention what accommodations they would like to have reserved for them. It is important to mention the price of room desired and to state the probable date of arrival. Should it happen that the hotel is unable to make the reservation desired, members should then write the chairman of the Committee on Hotels, Dr. H. L. Wilbur, 830 Frisco Building, Joplin. The names of the hotels and rates follow:

### HOTEL CONNOR (400 rooms)

	One Person	Each Ad- ditional Person
Room with toilet and lavatory, double bed .....	\$2.00	\$1.50
Room with bath, one double bed....	2.50	1.50
Room with bath, two double beds...	3.50	2.00
Room with bath, twin beds.....	3.00	2.00
Room with combination tub and shower, one double bed.....	3.50	2.00
Room with combination tub and shower, twin beds.....	4.00	2.00
Room with bath, one double bed....	4.00	2.00
Room with bath, one double bed....	4.50	2.00
Two-room suites, parlor and bedroom	6.00 up	2.00

### HOTEL YATES (50 rooms)

Single room, without bath.....	\$1.25
Single room, with bath.....	1.75
Double room, without bath.....	2.00
Double room, with bath.....	3.00

### AMERICAN HOTEL (50 rooms)

Single room, without bath.....	\$1.00 to \$1.50
Single room, with bath.....	2.00
Double room, without bath.....	1.50 to \$2.00

### KEYSTONE HOTEL (50 rooms)

Single room, without bath.....	\$1.50
Single room, with bath.....	2.00
Double room, without bath.....	2.00
Double room, with bath.....	3.00

## NEWS NOTES

The St. Louis City Hospital received 2273 patients during January, 1931, the greatest number on record for any month. Two new

daily records were made, 98 cases received on January 26, and 104 ambulance calls made on January 24.

Dr. Charles T. Reid, Joplin, sailed from New York, February 7, for Vienna where he will study diseases of the eye in the post-graduate clinics for the next three months.

The St. Louis Trudeau Club will hold its next monthly meeting in the St. Louis Medical Society building, Thursday, March 5, at 8:15 p. m. The scientific program follows:

"Blood Platelets in Tuberculosis," by Dr. Russell C. Brock, St. Louis. All members of the Medical Association are invited to attend.

With the background and wide experience of forty years' continuous service, Dr. G. Wilse Robinson, Kansas City, has decided to open a school for defective children in connection with the Robinson Neuropsychiatric Clinic. The Clinic was originally founded by Dr. John Puntun as the Puntun Sanitarium. The school which was opened February 2 is called the Robinson School for Different Children and is a training school with medical supervision for all types of subnormal, psychotic and unadjusted children.

A meeting of the World Conference on Narcotic Education will be held in Geneva, Switzerland, in May, 1931. The attention at the meeting will be directed almost wholly to means of cutting down the excessive manufacture of habit-forming drugs. The World Conference on Narcotic Education and the International Narcotic Education Association sponsored the fifth annual Narcotic Education Week in the United States in February. General education on the menace of narcotic drugs and propaganda that may lead to more strict legislation and curbing the manufacturing of narcotics was the theme of the national week.

A site for a new Bethesda Hospital to replace the present institution on Vista Avenue, St. Louis, has been purchased in St. Louis County. Plans for the new building have been under way for two years and a campaign for financing the erection of the new building is scheduled to begin early in 1932. The new site contains thirty-one and one-half acres. The hospital will be designed for patients of moderate means who do not wish charity ward service and will accommodate 250 patients. The plans include a general hospital building, a building for chronic invalids, a maternity home and a nurses' home. It will cost approximately \$1,500,000. The Bethesda charities were begun in 1889 by the late Dr. Edward W. Saunders.

Three beds in Research Hospital, Kansas City, will be supported through the year by the proceeds of an annual charity ball given February 16 by the women's auxiliary of Research Hospital. The average annual cost of the three beds is \$3000 and they serve approximately 150 patients a year.

The Nodaway County Medical Society wishes to complete its file of the State Medical Association's proceedings. The following volumes are needed: Bound Transactions for 1882 and all previous years, 1885, 1887, 1889, 1890, 1899, 1904; THE JOURNAL, volumes 1 to 8 (1904-1911) and volume 11 (1914). Members possessing duplicate copies of any of these are asked to write Dr. Charles D. Humbert, Secretary, Nodaway County Medical Society, Barnard, Missouri.

Between 1920 and 1930 the population in the four mental hospitals in Missouri increased 37 per cent according to the fifth biennial report of the State Eleemosynary Board. This increase is nearly six times as great as the proportional increase of the population of the state which was 6.38 per cent. The report made to Governor Caulfield and the legislature recommends the erection of one new institution now and another in ten years if the present increase continues. An expenditure of \$1,500,000 annually for the next ten years would be reasonable for support of the four hospitals and the two allied institutions, the Mount Vernon Sanatorium and the Marshall School for Feeble-Minded, the report says. The sum of \$3,027,000 is recommended for new buildings at the institutions.

The United States Civil Service Commission announces open competitive examination for physiotherapy aide. Applications must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than March 10. The examination is to fill vacancies in the Veterans' Administration and the Public Health Service. Competitors will be rated on practical questions and on their education, training, and experience. Applicants must have had at least two years of institutional experience as a physiotherapy aide, pupil aide, or physiotherapy assistant, except that certain specified education along physical education lines may be substituted in part for the required experience. Full information may be obtained from the U. S. Civil Service Commission, Washington, D. C., or from the secretary of the Board of Examiners at the post office or customhouse in any city.

Dr. Francis M. McCallum, Kansas City, was elected president of the Missouri State Board of Health, at the annual meeting of the board held in Jefferson City, January 26. Dr. Horace W. Carle, St. Joseph, was elected vice president and Dr. James Stewart, Jefferson City, was reelected secretary.

The Kansas City Southwest Clinical Society will hold its next monthly hospital clinic at St. Joseph's Hospital, Kansas City, Tuesday, March 10. The first hour of the meeting will be given over to operative clinics by members of the hospital staff. The pathologist of St. Joseph's Hospital will present necropsy findings of interesting cases. Arrangements are being made for a guest speaker.

Fifteen cases of trichinosis were recently reported at Williamsville, New York. This outbreak like others occurring in the United States was traced to the eating of raw or improperly cooked pork infected with the parasite *Trichina*. Eight of the fifteen patients were confined to hospitals but no fatalities were reported. The health officer of Williamsville obtained a list of the buyers of the pork thought to be infected and warned them so that they might obtain medical attention early if infected because treatment is effective only when begun early. The United States Department of Agriculture has prepared a leaflet for free distribution entitled "Trichinosis: A Disease Caused by Eating Raw Pork," giving the life history of the *Trichina*, and symptoms and duration of the disease which it causes.

The Oscar Johnson Institute for research in diseases of eye, ear, nose and throat, a part of the Washington University medical group, St. Louis, was opened in January. A staff of seventy-five scientists will conduct research in deafness, sinus disease, trachoma, cataract, glaucoma, common colds and other diseases. Technicians in chemistry, physics, and allied sciences will work in connection with the physicians. The institute is located with the McMillan Eye, Ear, Nose and Throat Hospital in a fourteen-story building. It was made possible through a \$500,000 gift of Mr. Johnson's widow and two sons. The hospital was created through a bequest of \$1,000,000 left by Mrs. William B. McMillan in 1915. An endowment of \$1,200,000 by the General Education Board, a Rockefeller philanthropy, will provide largely for research and teaching at the institute. Among other endowments is \$50,000 annually from the Commonwealth Fund for trachoma research. The enterprise represents a total investment of approximately \$4,000,000.



A committee for surveying the resources in Kansas City available for the establishment of a children's heart clinic was appointed January 23, by the Health Conservation Association. Dr. Roy F. Mills is chairman of the committee and Drs. Joseph E. Welker, Robert C. Davis and George H. Hoxie, all of Kansas City, are members.

Honorable Elihu Root, New York, Secretary of State in the administration of President Roosevelt, has been elected honorary president of the National Society for the Prevention of Blindness. The post was made vacant by the death of William Howard Taft, chief justice of the United States Supreme Court, who had served the society as honorary president from 1930.

Dr. Evarts Ambrose Graham, St. Louis, surgeon-in-chief of the Barnes, the St. Louis Children's and the St. Louis Maternity hospitals, and professor of surgery in Washington University School of Medicine, gave an illustrated lecture on "A Trip to the South Sea Islands," February 12, under the auspices of the Greater St. Louis Museum of Natural History. Dr. Graham recently visited the islands on his way to Australia where he delivered a series of lectures at the University of Melbourne.

A diagnostic and therapeutic clinic of urology in the Edward Mallinckrodt Institute of Radiology, Washington University Medical School, St. Louis, will be formally opened during the meeting of the American Association of Clinical Genito-Urinary Surgeons, March 6 and 7. The clinic is made possible by a gift, designated for this use, of \$20,000 from John F. Queeny and his son Edgar Monsanto Queeny of the Monsanto Chemical Works. The gift was made through Dr. John R. Caulk, professor of clinical genito-urinary surgery, Washington University School of Medicine. Speaking of the gift and the establishment of the clinic, Dean W. McKim Marriott of Washington University School of Medicine said, "The importance of urology as a division of medicine has been recognized at other medical centers, notably at Johns Hopkins and at the Cornell Medical group where large urological clinics have been established. The department of urology at Washington University, although staffed by scientists of outstanding ability, has been handicapped seriously up to the present time by lack of facilities. With the diagnostic and therapeutic department well equipped a long step will have been taken in the organization of a complete urological unit."

Fifty-five junior interns have been appointed to the St. Louis City Hospital, effective July 1, by Hospital Commissioner Lohr. Thirteen of the interns are graduates of St. Louis University School of Medicine and twenty-one from Washington University School of Medicine. The others are graduates of medical schools located in various parts of the country.

Eleven lepers will be released from the Carville Leprosarium, Carville, Louisiana. It has been scientifically certified that these patients have been restored to health. This is the largest number ever released at one time and makes a total of eighty-nine who have been rehabilitated in the ten years the institution has been under the administration of the United States Public Health Service. The eleven just discharged came from eight different states and the time spent in the Leprosarium varied from eleven months to six years.

The problem of the proper care of chronic invalids and of patients convalescing slowly from severe illnesses has occupied the attention of hospital executives during the last several years. The solution is not easily arrived at because of the numerous angles which it presents. Chief among these of course is the high cost of hospitalization and the low income of many people which make it practically impossible for many chronics and convalescents to enter modern hospitals, or, when admitted, compelling the institutions to bear a large portion of the expense incident to their care. Modern first-class general hospitals do not provide the special equipment and personnel needed to give these unfortunates continuous residence, treatment and care over long periods and the establishment of a special wing or even a floor for their use would be expensive and probably not self-supporting. These people must, therefore, go into so-called "homes" or be cared for by relatives in their own residences.

A recent attempt to solve this problem is meeting with encouraging success. We refer to the Palmer Sanatorium and Convalescent Hospital at Springfield, Illinois. With very little addition to its equipment and personnel this institution has established a section devoted wholly to the care of chronic cases and slowly convalescing patients. The splendid record attained by it in the treatment of tuberculosis since 1913 is an augury of the sort of attention that this class of patients will receive. On another page\* the facilities of the institution are described in detail.

\* See advertising page XXII.

The Montague Hospital for Intestinal Ailments was opened in New York City, January 1, the first hospital in the United States devoted entirely to the diagnosis and treatment of intestinal diseases. The hospital was created by a group of business men. Dr. J. F. Montague, New York, is medical director.

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More than 140 consignments of foods and drugs found to be in violation of the national pure food laws were seized by Federal officers in January. Seizures included eighteen lots of drug preparations labeled as having curative or preventive value for pyorrhea and related mouth diseases, twenty-one shipments of deteriorated ether, seven consignments of mislabeled or adulterated antiseptics and large stocks of foods and misbranded medicines. Thirteen barrels of "ginger Jake" were destroyed during the month at Kansas City, five barrels having been shipped from a New York drug house and eight from a Boston concern.

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The meeting of the American Association for the Study of Goiter in Kansas City, April 7, 8, and 9, will include surgical and diagnostic clinics, round table discussions of important problems relating to thyroid surgery, clinical pathological conferences and symposia on "The Goiter Heart" and "Preparation and After-Care of Operative Cases." Physicians and surgeons prominent in this branch of medicine throughout the country will address the meeting. Drs. A. Morris Ginsberg and L. S. Milne, Kansas City, will deliver addresses and members of the staffs of Kansas City hospitals will present surgical clinics. Dr. Kerwin Kinard, Kansas City, is president of the association.

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An organization in France similar to the American National Society for the Prevention of Blindness has recently been formed. The new society, the French National Committee for the Prevention of Blindness, has the three principal aims of the American society, namely, the prevention of blindness from infectious diseases, the prevention of industrial eye accidents, and conserving the remaining eyesight of visually handicapped school children. Dr. F. de Lapersonne, a distinguished ophthalmologist of Europe and professor emeritus of the University of Paris, is president of the new organization as well as president of the International Association for the Prevention of Blindness. One of the most important problems of the French organization will be the control of trachoma in the French colonies of northern Africa and the Near East. Plans are being made for establishing sight-saving classes in Paris similar to those in the United States.

A campaign for \$30,000 toward a fund for an addition to St. Mary's Hospital, Jefferson City, was begun February 16. This is the amount the citizens will be asked to contribute. The total cost of the addition will be approximately \$150,000. The new part will contain 50 rooms, doubling the present capacity of the hospital. In the twenty-fifth annual report covering the year 1930, the number of patients treated was given as 1527; the number of surgical cases, 902; obstetrical cases, 120; miscellaneous conditions, 505; and total hospital days, 16,155.

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A permit was issued by the City of St. Louis, February 16, for construction of the \$1,000,000 building of the Firmin Desloge Hospital, 1325 South Grand. The permit included the erection of a chapel made possible by a \$100,000 gift from Mrs. Firmin Desloge on February 15. The hospital fund was donated under the will of Firmin Desloge, lead mining magnate. The building will be 13 stories with a maximum height of 208 feet, and is to be constructed of brick and concrete. The chapel, with a seating capacity of 300, will be in Gothic style.

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Patients were turned away from the City Hospital No. 2 (for Negroes) and the Isolation Hospital in St. Louis during February because of overcrowding. At one time during the month the hospital for Negroes which has a normal capacity of 200 beds was serving 457 patients, and the Isolation Hospital with 225 beds was serving 288 patients. Dr. Curtis H. Lohr, hospital commissioner of St. Louis, credited the overcrowding not alone to the prevalence of disease but to unemployment which forced many who would ordinarily go into a private hospital to go into public institutions.

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A warning has been issued by the Federal Food and Drug Administration concerning dentifrices which the manufacturers claim will cure pyorrhea, trench mouth, bleeding, spongy or receding gums. The jurisdiction of the administration is only overstatements made upon labels or in printed circulars accompanying products and not overclaims made in magazine, newspaper, billboard, or radio advertising. Dr. Durrett, chief of drug control, says, "According to competent dental surgeons no tooth paste nor mouth wash is capable of curing pyorrhea." Dr. Durrett comments further that "there is no antiseptic nor dentifrice known to science at the present time that could be expected to reach the deeply seated organisms which cause pyorrhea and related mouth ailments."



An unusually large number of cases of tularemia have occurred this winter, according to a report by the United States Public Health Service. This increase, it is explained, is probably due to the importance of rabbits as an article of diet in many sections because of economic conditions. The three main sources of infection are given as tick bite, fly bite and dressing of wild rabbits. Cases in the United States have occurred in every month of the year but it is more prevalent in November, December and January. The Public Health Service warns against eating the rabbit which is killed with a club as it is probably a sick rabbit and advises that rubber gloves be worn in dressing all rabbits. The meat when thoroughly cooked is harmless but the infection is retained for three months in cold storage. No special treatment of the disease has been found effective, rest in bed being the most important measure.

The Medical Association of the Missouri Pacific Lines held its second annual meeting in St. Louis, January 30 and 31. The association is composed of approximately 600 physicians and surgeons located throughout the Missouri Pacific Railroad territory. The mornings were devoted to clinics held at the various hospitals. Each afternoon a scientific program of papers by the heads of departments and the staff of the Missouri Pacific Hospital in St. Louis was given at the St. Louis Medical Society building. A banquet was tendered the visiting physicians and surgeons, given jointly by the Missouri Pacific Railroad and the Missouri Pacific Hospital Association. The following officers were elected for 1931-1932: President, Dr. Emmett P. North, St. Louis; first vice president, Dr. J. R. McVay, Kansas City; second vice president, Dr. C. W. Streamer, Pueblo, Colorado. The secretary being an appointive office, Chief Surgeon Zeinert reappointed Dr. H. J. Scherck, St. Louis, as secretary. The next meeting will be held in St. Louis in January, 1932.

## OBITUARY

### MICHAEL GOLLAND, M.D.

Dr. Michael Golland, St. Louis, a graduate of Missouri Medical College, 1895 (now Washington University School of Medicine), died January 17, aged 68.

Dr. Golland was a member of the St. Louis Medical Society and had many friends among his colleagues who mourn his death.

### TINSLEY BROWN, M.D.

Dr. Tinsley Brown, Hamilton, a graduate of Missouri Medical College (now Washington University School of Medicine), St. Louis, 1876, died at his home February 9, aged 81.

Dr. Brown had resided in Hamilton for fifty-eight years and practiced medicine there for fifty-five years. He was always interested in civic affairs and was active in church and political circles and served as postmaster of Hamilton under President Wilson. His friends numbered all persons who knew him. He was always interested in the activities of the medical profession and particularly in the county and state medical organizations and was a Fellow of the American Medical Association. In 1909 he was elected president of the Missouri State Medical Association and presided at the session held in Hannibal in 1910. He had been secretary of the Caldwell County Medical Society for many years and was elected an Honor Member in 1926. He was vice president of the County Society in 1920, delegate in 1929 to the State Medical Meeting and alternate in 1926, 1927, and 1928.

Dr. Brown is survived by two sons, Tinsley Brown, Jr., Richmond, and Austin Brown, Hiawatha, Kansas; and one daughter, Miss Merle Brown, Hamilton.

### ARTHUR CAMPBELL KIMBALL, M.D.

Dr. Arthur C. Kimball, St. Louis, a graduate of Washington University School of Medicine, 1903, shot and killed himself at his home, February 3, because, according to a note, he feared insanity. He was 52 years old.

Dr. Kimball was born in St. Louis and spent his youth in Kirkwood. He attended Central High School, St. Louis. He served nine years with the Missouri National Guard, ranking as a major, and during the World War served as a captain in the medical corps. Dr. Kimball was a member of the staff of the St. Louis Mullanphy Hospital for twenty-five years and continued to serve on the staff when the name was changed to the St. Vincent DePaul Hospital in September, 1930. He was a member of the St. Louis Medical Society, the State Medical Association and a Fellow of the American Medical Association.

He is survived by his widow, Mrs. Natalie Birdseye Kimball, and one brother, Clinton Kimball, Cape Girardeau.

### WALLER J. PARKER, M.D.

Dr. Waller J. Parker, Steelville, licensed by years of practice in 1885, died at his home of pernicious anemia, December 1, 1930, aged 71.

Dr. Parker was born in Cole County, Missouri, February 10, 1860, and received his preliminary education at Ewing College, Illinois. He began the study of medicine under his father, Dr. W. H. Parker, and continued his studies for a while at the University of Louisville. He practiced medicine in Crawford County at Cherryville, Berryman, and Steelville for fifty years.

Dr. Parker was active in his profession. He had served the Crawford County Medical Society as secretary since 1921. He was a delegate to the State Medical Meeting in 1924 and again in 1929. He was a Fellow of the American Medical Association.

He is survived by a son, Dr. J. H. Parker, United States Veterans' Hospital, Alexandria, Louisiana.

#### EDWIN A. MENDELL, M.D.

Dr. Edwin A. Mendell, St. Joseph, a graduate of Lincoln Medical College, 1892, died at his home January 14, aged 69.

Dr. Mendell was born in Johnstown, Pennsylvania, and moved with his family to Nebraska. Upon finishing his course in medicine he began practice in Lincoln but soon located in St. Joseph where he continued practice until a few months before his death. He was interested in both civic and professional activities and was a member of the Buchanan County Medical Society.

He is survived by his widow, Mrs. Lillian Mendell, a daughter, four brothers and two sisters.

#### DAVID WISE, M.D.

Dr. David Wise, Carthage, a graduate of St. Louis College of Physicians and Surgeons, 1892, and Beaumont Hospital Medical College, 1893, died December 9, 1930, aged 61.

Dr. Wise was born in Wise Town, Illinois, and obtained his preliminary education in Greenville, Illinois. Following the completion of his medical course he practiced in Nebraska for a year, locating in Carthage in 1894 and continued in the practice of general medicine there until his death. In the thirty-five years he resided in Carthage he had made many friends. He was a member of the Jasper County Medical Society.

#### URETERAL ANOMALIES

Frederick T. Lau and Roy B. Henline, New York (Journal A. M. A., Feb. 21, 1931), report the case of a woman with three ureters on one side with one ending blindly in an aplastic kidney and with a bifid pelvis with a single ureter on the other side.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

### MISSOURI STATE MEDICAL ASSOCIATION 74TH ANNUAL SESSION

Joplin, May 11, 12, 13, 14, 1931

#### PRELIMINARY PROGRAM

##### Guests

Wilbur, Ray Lyman, Washington, D. C., Secretary of the Interior.

Fishbein, Morris, Chicago, Ill., Editor, Journal American Medical Association: Twenty-Five Years of Medical Progress.

Cary, Edward H., Dallas, Texas, Emeritus Professor of Ophthalmology and Otolaryngology, Baylor University School of Medicine.

Sloan, Edward P., Bloomington, Ill., Former President, Illinois State Medical Society: Dysfunction of the Thyroid Gland; Lantern Slides.

##### Symposia

Symposium on Traumatic Surgery:

Teachenor, F. R., Kansas City: Diagnosis and Management of Trauma of the Brain.

Zeinert, O. B., St. Louis: Diagnosis and Management of Injuries to the Chest.

Hyland, Robert F., St. Louis: Diagnosis and Management of Injuries to the Abdomen.

Leighton, W. E., St. Louis: Diagnosis and Management of Injuries to the Spinal Cord.

Symposium on Heart Disease:

Bohan, P. T., Kansas City: The Clinical Picture of Heart Disease.

Grant, S. B., St. Louis: Mechanical Aids in the Diagnosis of Heart Disease.

Strauss, A. E., St. Louis: The Treatment of Heart Disease.

Holbrook, Ralph W., Kansas City: The Prognosis of Heart Disease.

Symposium on Appendicitis:

Lowe, H. A., Springfield: Causes of the High Mortality in Appendicitis.

Baumgarten, Walter, St. Louis: Definite Appendiceal Symptomatology.

Helwig, F. C., Kansas City: As a Pathologist Views the Appendix.

Hertzler, A. E., Kansas City: The So-Called Chronic Appendix.

Stowers, J. E., Kansas City: How to Treat Appendicitis in Its Two Phases—Before and After Perforation.



Miller, E. Lee, Kansas City: When Not to Operate on a Case of Acute Appendicitis.

Couley, D. S., Columbia: Postoperative Complications of Appendicitis.

### Scientific Papers

Baskett, Edgar D., Columbia: Hypothyroidism in Young Women.

Bell, H. H., St. Louis: Search for Tuberculosis in School Children: Importance to the Child, to the Parent and to the Community.

Child, Scott P., Mt. Vernon: Tuberculosis in Children: Its Diagnosis and Prognosis.

Dorsett, E. Lee, St. Louis: Breech Presentation: Lantern Slides.

Ferris, Carl R.; Elliott, B. Landis, and Stookey, Paul F.; Kansas City: Early Diagnosis and Treatment of Acute Anterior Poliomyelitis.

Gay, Lee Pettit, St. Louis: Abdominal Surgery.

Gilliland, C. E., St. Louis: Radiological Examination of the Gallbladder.

Gilliland, O. S., Kansas City: Sinusitis in Children.

Grantham, S. A., Joplin: Spinal Fusion by the Tunneling Method; Motion Pictures.

Greene, Charles W., Columbia: The Control of the Coronary Arterial Blood Supply in Relation to Angina Pectoris.

Heller, E. P., Kansas City: Recent Additions to the Armamentarium for Fracture Reduction and Retention.

Henske, Andrew C., and Ehlers, Charles W., St. Louis: Selective Pneumothorax. A Review of the Literature and a Report Based upon the Study of Eighty-Nine Cases; Lantern Slides.

Hunt, Claude J., Kansas City: Carcinoma of the Colon; Report of Occurrence in a Young Adult.

Jennett, James Harvey, Kansas City: Persistent Hereditary Edema of the Legs (Milroy's Disease).

Kettlekamp, George D., St. Louis: Determination of Activity in Tuberculosis.

Kinard, Kerwin W., Kansas City: Present Status of Iodine in Goiter Treatment.

Klemme, Roland M., St. Louis: Cervical Cord Tumors; Report of a Cord Tumor Extending from Second Cervical Spine Segment Through the Foramen Magnum and into the Posterior Fossa; Recovery.

Lingenfelder, Julius, Hermann: The General Practitioner, Guardian of Public Health.

Love, Joseph W., Springfield: Massive, Spontaneous Hemorrhage into the Vitreous Humor and Iritis, Both Eyes, Accompanying the Schönlein-Henoch Syndrome; Report of a Case.

McCandless, O. H., Kansas City: Epithelioma.

Mudd, James L., St. Charles: Surgery of Pulmonary Tuberculosis.

Pendleton, George F., Kansas City: The Bandl Ring.

Robnett, Dudley A., Columbia: Hernia of the Bladder.

Schnobelen, P. C., St. Louis: Improved Method of Making Early Diagnosis of Defects in the Colon; Lantern Slides.

Smith, Clinton K., Kansas City: Suprapubic Prostatectomy Under Vision with Reconstruction of the Bladder Neck.

Smith, C. Souter, Springfield: Basal Metabolism in Middle Ear Catarrh.

Stewart, J. Edgar, St. Louis: Treatment of Fractures of the Upper End of the Femur.

Werner, August A., St. Louis: The Hypovarian Syndrome.

Wilhelmi, Otto J., St. Louis: Nonvenereal Prostatitis.

## ASSOCIATION OF ASSISTANT PHYSICIANS OF MISSOURI STATE HOSPITALS

### Morning Session

The meeting of the Missouri state hospital physicians was held at Marshall, January 28, 1931. The meeting was called to order at 9:30 a. m. by Dr. T. R. Frazer, Fulton, vice president. Dr. Frazer appointed Dr. G. W. Forman, St. Joseph, to act as secretary.

The address of welcome was given by Dr. E. E. Brunner, superintendent of the State School, Marshall. Incorporated in the address was an informative display of two specimens of lettuce from identical types of seed and planted at the same time. The smaller specimen was grown in the native Saline County soil; the larger was grown in the same soil to which had been added manganese sulphate. The striking difference in the size of the two specimens would appear to offer conclusive evidence of the value of this chemical in plant nutrition.

Dr. N. K. Pope, Marshall, being ill and unable to read his paper on "Endocrine Disorders," Dr. Brunner kindly consented to read a paper on the same subject and to present clinical cases of endocrine dysfunction. While these cases were being prepared for presentation a short business meeting was held.

Dr. P. S. Tate, Farmington, spoke regarding the attitude of attendance at the meetings. The desires of the president and members of the eleemosynary board regarding the matter and the benefits to be gained by the staff members, were discussed.

Dr. Tate moved that Dr. Frazer be elected president of the organization and that Dr. Forman be elected secretary. The motion was seconded and carried.

A motion was made by Dr. F. H. Maples, Marshall, naming Dr. P. S. Tate as nominee for vice president. A vote was taken and Dr. Tate was unanimously elected vice president.

It was unanimously agreed that the association should meet at the different state hospitals in rotation and that the secretary notify the hospital at which the next meeting is to be held.

An interesting and instructive paper, "Endocrine Dysfunction Among Mental Defectives," was read by Dr. E. E. Brunner, Marshall, in which clinical cases representing all the types of the endocrine disorders occurring in mental defectives known to man were represented. Included among these cases were, status thymicolymphaticus; hypopituitary diseases; the Levi Lorraine type of hypopituitary disease; hyperpituitary disease with and without acromegaly; hypothyroidism or cretinism and mongolism.

An informative discussion followed in which the diagnostic features and the therapeutic measures were considered.

The following points were stressed by Dr. E. E. Brunner: (1) That the hypothyroid cases should be treated by initial doses of thyroid extract, gr. 1/10, three times daily, gradually increased and given with one drop of a saturated solution of sodium iodide; (2) that good results in hyperpituitary cases frequently follow treatment with placental extract; (3) that hypopituitary cases are benefited by pituitary substance.

The meeting was adjourned at 12 o'clock noon. Luncheon was served in the hospital dining room in association with the members of the Saline County Medical Society.

### Afternoon Session

The association met in conjunction with the Saline County Medical Society. Following a short business meeting of the Saline County Medical Society,

the meeting of the association was called to order by the president, Dr. Frazer.

A paper on "Manganese Chloride in the Treatment of Dementia Praecox" was read by Dr. Ralf Hanks, Farmington. Tables were presented giving the ages, duration, classification, weights gained and lost, together with degrees of mental and physical improvement. As stated by Dr. Hanks, this work was first initiated by Dr. W. M. English, superintendent, Ontario Hospital, Brookville, Ontario, on the basis of results obtained by Walbum, of Copenhagen, Denmark, which included the following: (1) Metallic salts exert a strong stimulating influence on many of the substances which the body possesses for defense against bacterial attack and for the inhibition of infectious processes. (2) Metallic salts can render animals immune against injection of toxins. (3) Metallic salts increase the normal power of the body to break up bacterial toxins the chemical activity of the body cells being stimulated to exercise energy with which they are equipped by nature.

The discussion was opened by Dr. P. S. Tate, Farmington, who stressed the association of schizophrenia with defective nutrition and disease which thus offers a logical explanation for the benefit produced by this method of treatment.

Dr. T. R. Frazer recalled the theory of Kitabagaskin regarding the etiology of dementia praecox on the basis of toxemias and their actions on the choroid plexus with the associated and resulting symptoms. He stated that this possibly explains the beneficial results of manganese treatment.

Dr. P. S. Tate, Farmington, read a paper on "Neurosyphilis; With Report of Cases." Included in this report were forty cases of paresis and taboparesis treated by malarial inoculation. The results of treatment showed a clinical remission in approximately 20 per cent of cases. An interesting discussion followed.

The members were conducted to the pathological laboratory of the hospital where Dr. F. H. Maples demonstrated numerous pathological specimens including brains of epileptic and microcephalic patients; cerebral hemorrhage; tuberculous abscesses of the lungs; vegetative endocarditis; cholelithiasis, etc. The case histories were available and a beneficial discussion was rendered by Dr. Maples.

Throughout the entire meeting the members of the association were favored by the extreme courtesy and hospitality of Superintendent Brunner, by his assistant physicians and all the personnel of the institution. Such fine treatment and hospitality made this meeting a particularly enjoyable one.

The next meeting will be held at Mt. Vernon.

G. W. FORMAN, M.D., Secretary.

## BOONE COUNTY MEDICAL SOCIETY

An interesting meeting of the Boone County Medical Society was held in the Tiger Hotel, Columbia, Tuesday evening, December 2, 1930. The guest of the Society was Dr. L. Ray Ellars, Louisville, Kentucky, a classmate of Dr. W. O. Fischer, Columbia.

Dr. Ellars gave a talk on "Spinal Anesthesia and Acute Conditions Within the Abdomen."

The four-year medical course at the State University was discussed by Drs. D. S. Conley and D. G. Stine, of Columbia.

The following officers were elected for the year 1931: President, Dr. William E. Belden, Columbia; secretary, Dr. S. D. Smith, Columbia.

W. O. FISCHER, M.D.

## DUNKLIN COUNTY MEDICAL SOCIETY

A summary of the proceedings of the Dunklin County Medical Society having been requested, the following is an attempt to review the activities during 1929 and 1930.

### FIVE COUNTY GROUP OF SOUTHEAST MISSOURI

In the late fall of 1928 at a meeting of the Southeast Missouri Medical Society, Dr. T. C. Allen, of Bernie, suggested to me that it might be well to try out a plan of grouping Dunklin and Stoddard counties in order to get out a sufficient number of doctors for a good meeting. Taking this up with our president and suggesting a time and meeting place, I received a letter from Dr. Paul Baldwin stating that he thought the idea excellent and suggested that if New Madrid and Pemiscot would join us it would take in an even hundred doctors and a nice little square of territory where common affections are found.

Arrangements were started and Malden was chosen as the meeting place. On December 27, 1928, the first meeting was held in the basement of the Christian Church, which is large, roomy and comfortable. After enjoying a splendid luncheon served by the ladies and a few after dinner talks the meeting was called to order by Dr. Baldwin who stated the plan that he, Dr. Allen and I had worked out.

It was determined that we would have no officers except a corresponding secretary, no fees and no by-laws. Meetings would be held four times annually on the second Tuesday in March, June, September and December. Each county in turn would act as host with its president presiding. Since Butler County was represented with eight doctors and begged to join us the fifth county was taken in which greatly helped the movement. We now come to the program as planned which follows:

1. "Symptoms, Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis," by Dr. John H. Cochran, representing New Madrid County.

2. "Some Commonly Overlooked Symptoms of Malaria," by Dr. T. C. Allen, representing Stoddard County.

3. "Measles Prophylaxis With Serum of Adults Who Had Measles in Childhood," by Dr. John D. Van Cleve, representing Dunklin County.

The program invited a great deal of enthusiastic discussion and after deciding to carry on the plan Dr. T. C. Allen was elected corresponding secretary with the duty of supervising the preparation of the programs. One man was to be selected from each county to assist in making up the programs. The first year was very successful and Dr. Allen was re-elected secretary because of the splendid programs and the large attendance.

Due credit is given Dr. T. C. Allen as the originator of the idea, but we feel that the Dunklin County Medical Society deserves the credit of putting the group into actual existence. Since the organization has been so successful in furnishing a much needed method of interesting physicians, we recommend that other portions of the state, especially in counties with few doctors, form similar groups and obtain the advantages of postgraduate work at home. This being the first organization of the kind, Dunklin County Medical Society is proud of its venture because we believe it will point the way to more successful methods of treating the sick.

In December, 1929, another step was taken to improve the group by cooperating with the Postgraduate Committee of the Missouri State Medical Association. This splendid suggestion was given us



by the secretary-editor of the State Association. At the March, 1930, meeting a most satisfactory post-graduate program was presented with Drs. Wm. F. Neun and George Gellhorn lecturing respectively on "Anesthetics in Obstetrics," and "Postpartum Hemorrhage." The Dunklin County Medical Society entertained this meeting at Kennett and with so much enthusiasm that the work was decided to be continued for an indefinite time. In June Stoddard County entertained at Bernie with a splendid program on pediatrics with the largest attendance of the year. In September the Hayti doctors invited us to meet there with the Pemiscot Society entertaining with a program on internal medicine, possibly the best of the year. In December the Poplar Bluff doctors invited us to meet there with the Butler County Society entertaining, giving a surgical program that equaled the success of any others. The next program has been postponed from March to the first Tuesday in April because of the uncertain weather conditions in March. The New Madrid County Medical Society will act as host at New Madrid with a gynecological program. Any doctor in good standing is cordially invited.

#### DUNKLIN COUNTY MEDICAL SOCIETY

During the year 1929, the Dunklin County Medical Society met seven times with an average of ten doctors present at each meeting. Fifteen members were in good standing with dues paid in full. Five were made Honor Members (worthy physicians of 70 or more years). Scientific programs were not planned, leaving these for the Five County Group, but round table discussions concerning many phases of medical practice were held. Many plans were discussed throughout the year, among the most important being: Cooperating with the county health unit to immunize against typhoid and diphtheria; a method for better collections of accounts which resulted in the organization of the Dunklin County Physicians Business Association; discussion of the building of a Dunklin County Hospital. One new member, Dr. Wheeler Davis, Kennett, was added to our membership.

*Meetings During 1930.*—Dr. S. E. Mitchell, who served as president for 1929, was reelected for 1930 because of his splendid leadership. Eight meetings were held throughout the year with an average of nine members present. Each member was designated a committee of one to study and report on some problem concerning a county hospital. Eight members responded with splendid studies and information on the following: The legal manner of obtaining, maintenance, number of beds needed in a county of 40,000, expense of running, needed help, needed equipment, how to run it, and proper executive help. While a great deal was accomplished in gaining valuable information we realize with existent conditions it is not time to start a hospital. In the near future we are certain our dreams will be fulfilled.

Fifteen members were paid in full for 1930, the Honor Members are faithful to the cause and one new member, Dr. A. Glenn Davis, of Senath, was added to our membership.

*Meeting of December 30, 1930.*—Eight members met and paid dues for 1931 at Kennett on this date in the office of the County Health Unit. Two regular meetings planned for the year were decided upon, a midsummer and a late winter one. Called meetings will be held as deemed necessary by the new president. A ruling to drop delinquent members

who fail to pay dues for two years was adopted. It was decided that the Dunklin County Medical Society furnish each of the eight high schools of the county with a copy of Hygeia for the school library. A general round table discussion on gonorrhea and pneumonia brought out some interesting data including improved modern methods in treatment.

The following officers were elected for 1931: President, Dr. W. L. Gossage, Kennett; vice president, Dr. Paul Baldwin, Kennett; secretary-treasurer, Dr. J. D. Van Cleve, Malden; delegate, Dr. S. E. Mitchell, Malden; alternate, Dr. E. G. Cope, Hornersville; censors, Drs. A. Glenn Davis, Senath, for three years, U. V. A. Presnell, Kennett, for two years, Wheeler Davis, Kennett, for one year.

The financial report showed a balance of \$54.72 in the treasury.

The above report was requested to be made a permanent record for the Society and that it be published in the State Association JOURNAL so that other counties might know of our work.

JOHN D. VAN CLEVE, M.D., Secretary.

#### HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society at its meeting of December 16, 1930, elected the following officers for the year 1931: President, Dr. W. E. Kitchell, St. Clair; secretary-treasurer, Dr. H. A. May, Washington.

H. A. MAY, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The regular meeting of the Jasper County Medical Society was held in Joplin, December 16, 1930, with eighteen members and four visitors present. The guest speaker was Dr. Morris H. Clark, Kansas City. The minutes of the previous meeting were read and approved.

The application of Dr. C. G. Martin, formerly of Bristow, Oklahoma, was read and referred to the board of censors.

Resolutions on the death of Dr. David Wise, Carthage, were read by the Committee on Resolutions. On motion, seconded and carried, the resolutions were adopted, a copy included in the minutes of the Society and a copy sent to the family.

Dr. S. H. Miller, Joplin, reported his observations on the unusual pigmentation of the lids of a girl aged 12.

Dr. D. R. Hill, Joplin, reported a case of pain in the right side of the face suggestive of trifacial neuralgia.

Dr. J. W. Barson, Joplin, and Dr. L. B. Clinton, Carthage, reported cases of abdominal injury with late gastric hemorrhage.

Dr. Morris H. Clark, Kansas City, discussed the relation of general diseases to the eye. He emphasized the point that the general practitioner should be able to recognize that a deviation from the normal exists even though he is not expected to make an accurate diagnosis, so that disturbances may be more often discovered in their incipency.

#### Meeting of January 6, 1931

At the meeting of January 6 the installation of officers was held, followed by a banquet and entertainment at the Hotel Connor. There were seventy members and guests present.

#### Meeting of January 13, 1931

The meeting was called to order by the newly

elected president, Dr. L. C. Chenoweth, Joplin. Seventeen members and two visitors were present. The Society had as its guest Dr. C. R. Ferris, Kansas City, who came through the courtesy of the Postgraduate Committee of the State Association.

The application of Dr. C. G. Martin was approved by the board of censors and Dr. Martin was unanimously elected to membership.

The application of Dr. Paul W. Walker, Joplin, was read and referred to the board of censors.

Dr. W. S. Loveland, Joplin, presented a case of hydrothorax in a tuberculous patient.

The guest speaker of the evening, Dr. C. R. Ferris, Kansas City, gave a talk on "Diabetes Mellitus." He stressed the various factors tending to produce diabetes and the recognition of potential diabetics. He explained the type of diet for convenient management of patients of standard and substandard mental capacity. He also described the use of high carbohydrate diet in certain types of diabetes and some of the dangers in treating coma. His informal talk illustrated with blackboard sketches was highly instructive and resulted in a free discussion by most of the members.

O. T. BLANKE, M.D., Secretary.

### JOHNSON COUNTY MEDICAL SOCIETY

On January 14, 1931, the Johnson County Medical Society met at the Warrensburg Clinic, Warrensburg. The meeting was called to order by the president, Dr. W. G. Thompson, Holden. The following members were present: Drs. J. T. Anderson, Ralph McKenny, W. R. Patterson, O. B. Hall, L. J. Schofield and T. J. Draper, of Warrensburg; Samuel A. Murray and W. G. Thompson, of Holden.

The following officers for 1931 were elected: President, Dr. J. A. Powers, Warrensburg; vice president, Dr. Ralph McKenny, Warrensburg; secretary, Dr. T. J. Draper, Warrensburg (reelected); delegate, Dr. W. G. Thompson, Holden. Board of Censors, Drs. E. Y. Pare, Leeton; H. F. Parker, Warrensburg; Dr. J. E. Porter, Knobnoster.

T. J. DRAPER, M.D., Secretary.

### LAWRENCE-STONE COUNTY MEDICAL SOCIETY

At a special meeting of the Lawrence-Stone Medical Society January 13, the following officers were elected for 1931: President, Dr. E. E. Glenn, Mount Vernon; vice president, Dr. J. C. R. Doggett, Crane; secretary-treasurer, Dr. R. D. Cowan, Aurora; delegate, Dr. H. L. Kerr, Crane; alternate, Dr. F. S. Stevenson, Aurora. Drs. E. E. Glenn, R. D. Cowan, H. L. Kerr, Scott P. Child and James W. Smith were appointed members of the executive committee.

The next meeting will be held on Tuesday, March 3, 1931.

R. D. COWAN, M.D., Secretary.

### PLATTE COUNTY MEDICAL SOCIETY

The newly elected officers for Platte County Medical Society are as follows: President, Dr. Wilson Murray, Platte City; vice president, Dr. J. M. Hale, Dearborn; secretary-treasurer, Dr. Spence Redman, Platte City; delegate, Dr. B. E. Ellis, Weston; alternate, Dr. L. C. Calvcrt, Weston.

SPENCE REDMAN, M.D., Secretary.

### SIXTEENTH DISTRICT MEDICAL ASSOCIATION

The Sixteenth District Medical Association met in Nevada at State Hospital No. 3, January 22. Dr. George H. Thiele, Butler, presided.

Bates County was represented by Drs. E. N. Chastain, R. E. Crabtree, C. A. Lusk, and G. H. Thiele, of Butler; St. Clair County by Dr. H. P. Yater; Cedar County by Drs. J. W. Dawson and W. P. Royston, Eldorado Springs; Vernon County by Drs. T. D. Combs, Bronaugh; C. B. Davis, Walker; and W. L. Davis, J. T. Hornback, E. R. King, T. T. O'Dell, Katherine Suyetoff, F. A. Martin, F. M. Grogan, J. M. Yater, of Nevada.

Drs. James R. Elliott and Don R. Black, of Kansas City, were guests and presented the scientific program. Dr. Elliott delivered an address on "Diabetes," and Dr. Black spoke on "Dislocations and Fractures."

The next meeting will be held in Butler, February 19.

G. H. THIELE, M.D.

### ST. LOUIS MEDICAL SOCIETY

Meeting of the General Society, December 16, 1930

The meeting was called to order at 8:40 p. m. by past president Amand Ravold, in the absence of the president.

A case of "Spontaneous Pneumothorax" was presented by Dr. Lawrence Schlenker.

The following scientific program was given:

A paper by Drs. Archie D. Carr, A. O. Fisher and J. W. Larimore, on "Hyperinsulinism Due to Adenoma of the Pancreas," was read by Dr. Carr.

Discussion by Drs. A. O. Fisher and B. Y. Glassberg.

Dr. D. K. Rose read a paper on "The Treatment of Pyelitis in Pregnancy," illustrated with lantern slides.

Discussion by Drs. Fred Emmert and Hugo Ehrenfest.

"A Modification of the Aschheim-Zondek Test for Pregnancy," illustrated with lantern slides, was the title of a paper read by Dr. T. K. Brown.

Discussion by Drs. Grover Liese, Otto H. Schwarz, George Ives; Dr. Brown, in closing.

Attendance 101.

HERBERT S. LANGSDORF, M.D., Secretary.

Meeting of the Council December 10, 1930

The meeting was called to order at 8:20 p. m. by the president, Dr. Vilray P. Blair.

The report of the membership committee was read by Dr. H. G. Lund.

On motion of Dr. C. A. Vosburgh, seconded by Dr. John Green, the following applicants were voted upon collectively and elected to membership: *Active*, Edward L. Keys; *Junior*, Lyle L. Baker, James O'Donoghue, Clifford A. Schmiesing, Carl A. Schuck. *Corresponding*, Oliver E. Stewart, Crystal City; Paul T. O'Keefe, Waterloo, Iowa.

The application of Dr. Howard C. Knapp by transfer from the Baltimore (Maryland) Medical Society was read for the first time.

The treasurer, Dr. F. C. E. Kuhlmann, read his report for the month of November, and a supplementary report. On motion the report was received.

Mr. Elmer E. Bartelsmeyer, executive secretary, reported orally from a written report filed with the secretary. On motion of Dr. John Green, seconded by Dr. C. H. Neilson, the report was received.

M. Guy Hardin & Company was engaged to audit



the books for the year 1930. On motion of Dr. C. H. Shutt, seconded by Dr. C. A. Vosburgh, the recommendation was adopted.

Adjournment 11:40 p. m.

HERBERT S. LANGSDORF, M.D., Secretary.

### Annual Meeting of the General Society

January 6, 1931

The meeting was called to order at 9:00 p. m. by the president, Dr. Vilray P. Blair.

A musical program was rendered following the president's address and the officers for 1931 were installed.

The meeting concluded with the president's reception, refreshments and dancing.

ALVIN H. DIEHR, M.D., Secretary.

### Meeting of January 13, 1931

#### Tenth Annual Hodgen Lecture

The meeting was called to order at 8:35 p. m. by the second vice president, Dr. A. R. Shreffler.

The meeting was turned over to the St. Louis Surgical Society for the annual Hodgen Lecture, Dr. Louis Rassieur presiding.

The speaker, Dr. W. Edward Gallie, professor of surgery, University of Toronto Faculty of Medicine, was introduced by Dr. Evarts Graham and gave an address on "Recent Advances in the Transplantation of the Fibrous Tissues," illustrated with lantern slides.

Attendance 200.

ALVIN H. DIEHR, M.D., Secretary.

### Meeting of January 20, 1931

The meeting was called to order at 8:30 p. m. by the first vice president, Dr. Joseph C. Peden.

The following scientific program was given:

"Exhibition of Laryngectomized Patient With Demonstration of Artificial Larynx," Dr. E. Lee Myers.

Discussion and lantern slide demonstration by Dr. W. C. Collier.

"Toxemias of Pregnancy," Dr. Jerome Simon.

Discussion by Dr. E. Lee Dorsett.

"The Incidence and Treatment of Heat Prostration," Dr. John Reichman.

Discussion by Dr. Charles H. Neilson.

"Recent Developments in Radiation Therapy," Dr. L. R. Sante. Demonstration of the Mecapion machine with lantern slides.

Discussion by Dr. Edgar Spinzig.

"Differentiation Between Tuberculous Infection and Tuberculous Disease," illustrated with lantern slides, Dr. G. D. Kettlekamp.

Discussion by Dr. J. F. Bredeck.

"The Treatment of Dementia Paralytica With Malaria," Dr. R. C. Fagley.

Discussion by Dr. William W. Graves.

Attendance 215.

ALVIN H. DIEHR, M.D., Secretary.

### Meeting of January 27, 1931

The meeting was called to order at 8:35 p. m. by the president, Dr. Charles E. Hyndman.

The following scientific program was given:

"A Clinical Study of Recurrent Peptic Ulcer," illustrated with lantern slides, Dr. Frank D. Gorham.

"Extra-Alimentary Tumors as Revealed by Gastro-Intestinal X-Ray," Dr. H. W. Wiese.

"Studies of Gastric Acidity," illustrated with lantern slides, Dr. Robert Evans.

"Varieties of Cardiac Obstruction in Relation to

Cardiospasm," illustrated with lantern slides, Dr. J. W. Larimore.

Discussion by Drs. Paul F. Titterington and O. A. Ambrose.

Attendance 103.

MARSH PITZMAN, M.D., Secretary pro tem.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met in regular session January 15, at Kirkwood. The following members were present: Drs. R. B. Denny, Creve Coeur; H. N. Corley, Wm. F. O'Malley, C. P. Dyer, F. C. E. Kuhlmann, and A. W. Westrup, of Webster Groves; Garnett Jones and L. C. Obrock, of St. Louis; John H. Armstrong, Kirkwood; Marriott T. Morrison, J. D. Stoelzle and Otto Koch, of Clayton; W. H. Townsend, E. E. Tremain, and E. O. Breckenridge, of Maplewood; F. J. Petersen, Richmond Heights. Visitor, Dr. Curtis Lohr, St. Louis. The meeting was called to order by the president, Dr. R. B. Denny, Creve Coeur.

Dr. Curtis Lohr, hospital commissioner of St. Louis, read a paper on "Diagnosis and Treatment of Diphtheria." The paper was excellent.

Drs. A. W. Westrup, E. E. Tremain and W. H. Townsend gave interesting reports of communicable diseases. The reports were discussed freely.

Dr. Andy Hall, Jr., Maplewood, was elected a member by transfer from the St. Louis Medical Society.

Dr. Garnett Jones, St. Louis, chairman of the necrology committee, read a biographical sketch of the life of our late member, Dr. Roswell Henry Trumppour, and the resolutions adopted by the Society. The resolutions follow:

#### ROSSELL HENRY TRUMPOUR, M.D.

Dr. R. H. Trumppour, of Des Peres, St. Louis County, Missouri, died at his home, December 20, 1930, after a short illness.

Dr. Trumppour was the son of Samuel S. Trumppour and Harriet Van Dusen and was born April 7, 1876, at Salmon Point, Ontario, Canada. He was graduated from the St. Louis College of Physicians and Surgeons in 1901. He practiced at Spring Bluff, Missouri, and for the last thirteen years at Des Peres. He is survived by his wife who was Miss Lucy Luna, and a son, Roswell.

Our committee recommends the adoption of the following resolution:

WHEREAS, God in His infinite wisdom has seen fit to remove from our midst our beloved brother, Dr. Roswell Henry Trumppour, therefore be it

*Resolved*, That the members of our Society extend our sympathy to the widow and son, and be it further

*Resolved*, That our Society has lost a valued member and that the community in which he lived will miss his kindly and helpful ministrations, and be it further

*Resolved*, That a copy of these resolutions become part of the records of this Society and that a copy be sent to his widow.

GARNETT JONES  
H. N. CORLEY  
E. L. FREDERICKS

Committee.

F. J. PETERSEN, M.D., Secretary.

### ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met in regular session at State Hospital No. 4, Farmington, January 23, 1931, at 8:00 p. m. There were eighteen members present.

The Society was fortunate in having as its guests three St. Louis physicians, Drs. Grayson Carroll, Howard Rusk and G. V. Stryker, who furnished the scientific program. These speakers were sent by the Postgraduate Committee of the Association.

Dr. W. W. Johnston, Flat River, moved that Madison County Medical Society be amalgamated with St. Francois-Iron County Medical Society. The motion was seconded by Dr. C. C. Winter, Farmington, and carried unanimously.

Dr. Grayson Carroll read a paper on "The Clinical Evaluation of Uroselectan," illustrated with lantern slides.

Dr. Howard Rusk talked on "The Effect of Pregnancy on the Thyroid."

Dr. G. V. Stryker spoke on "Ringworm Infection of the Hands and Feet," illustrated with lantern slides.

These subjects were very interesting and were discussed by several of the members.

Dr. R. C. Kitchell, Bismarck, extended an invitation to meet at Bismarck in February. A six o'clock dinner will be served.

Dr. W. E. Aubuchon, Leadwood, invited the members to meet at Leadwood in March for dinner and for a scientific meeting.

Both invitations were accepted.

RALF HANKS, M.D., Secretary.

## ST. CHARLES COUNTY MEDICAL SOCIETY

The St. Charles County Medical Society has elected the following officers for 1931: President, Dr. Vincent A. Schneider, St. Charles; vice president, Dr. B. Geret Gossow, St. Charles; secretary-treasurer, Dr. L. E. Belding, St. Charles; delegate, Dr. A. P. Erich Schulz, St. Charles; alternate, Dr. B. Geret Gossow, St. Charles. Censors, B. Geret Gossow, St. Charles (term expires, 1932); J. M. Jenkins, St. Charles (term expires, 1933); A. P. Erich Schulz, St. Charles (term expires, 1934).

L. E. BELDING, M.D., Secretary.

## STE. GENEVIEVE COUNTY MEDICAL SOCIETY

The Ste. Genevieve County Medical Society held its annual meeting December 10, 1930. The president, Dr. G. M. Rutledge, Ste. Genevieve, presided.

There was a good attendance and after disposing of routine business the election of officers for the year 1931 was held. Those elected were: President, Dr. J. A. Wilkins, St. Marys; vice president, Dr. G. M. Rutledge, Ste. Genevieve; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. R. W. Lanning, Ste. Genevieve; alternate delegate, Dr. C. J. Clapsaddle, Ste. Genevieve. Dr. A. E. Sexauer, Ste. Genevieve, was elected a member of the board of censors to serve with Drs. J. A. Wilkins and R. C. Lanning.

The treasurer read his report which showed a balance on hand of \$35.03. On motion the report was adopted.

R. W. LANNING, M.D., Secretary.

## KANSAS CITY ACADEMY OF MEDICINE

Meeting of October 24, 1930

## ULCERATIVE LESIONS OF THE LARGE INTESTINE.—By J. ARNOLD BARGEN, Rochester, Minn.

Ulcerative lesions of the large intestine include chronic ulcerative colitis, tuberculous colitis, amebic colitis and malignant disease. Rarer lesions are bacillary dysentery, enteritis, *Balantidium coli* infection, diverticulitis and perityphlitis.

Chronic ulcerative colitis has been designated as idiopathic or nonspecific ulcerative colitis, colitis ulcerosa gravis, and bacterial ulcerative colitis. In 1909 Wallis found streptococci in the stools and emphasized the significance of oral sepsis; in 1915 the relation of colitis to polyps of the colon was noted; in 1923 the significance of primary injury to the mucosa was brought up and in 1924 diplococci resembling pneumococci were isolated in pure culture. Observations of more than a thousand cases at the Mayo Clinic have convinced investigators that the condition is an infection in which streptococci, with characteristic morphological and biological properties, isolated from the rectal lesions, play a prominent etiologic part. They have been found in distant foci and by blood culture in a few cases; and by intravenous injection of cultures of this diplostreptococcus, lesions resembling those in the human intestine have been produced in rabbits and in dogs. Accumulated evidence indicates that some pleomorphism exists, possibly in the nature of mutants.

Among the predisposing factors in chronic ulcerative colitis are acute infectious diseases, especially those involving the upper respiratory tract, fatigue, overwork and unusual abdominal strain.

The sigmoidoscope presents a characteristic picture of a granular rectal wall, diffusely inflamed, edematous, bleeding readily, followed by milary abscesses and ulcers which by confluence result in shaggy ulcers with strips of mucosa between them with subsequent narrowing of the lumen. Pseudopolyps may form with adenomatous changes later.

The most important aids in the diagnosis of ulcerative intestinal lesions are: (1) Careful anamnesis; (2) gross and microscopical observations of rectal discharges; (3) proctoscopic examination; (4) roentgen ray; (5) blood studies; (6) physical examination. A presumptive diagnosis is often made by the history alone. Stools in amebic cases contain relatively more mucous. Blood is the exception in tuberculosis. In chronic ulcerative colitis there is a vast predominance of leukocytes and streptococci. The barium enema is more valuable than the barium meal but neither should be used in lesions resembling tumors which can be visualized with the sigmoidoscope because of the danger of impaction above the tumor. Anemia is common to all these lesions but may be much like pernicious anemia in ulcerative malignant lesions of the right half of the colon. Rectal digital examination is a very significant diagnostic measure.

In chronic ulcerative colitis the pendulum is swinging from surgical to medical treatment, although ileostomy is still employed in acute fulminating cases, in stricture, and in polyposis. Intestinal irrigations have been used but the infection involves the whole wall of the bowel and not the lining alone. An effective method of treatment consists of (1) immunization, vaccination or desensitization; (2) removal of foci of infection; (3) liberal diet.

Vaccines are prepared from cultures of diplostreptococci from the rectal lesions, and a specific serum by immunization of horses. Serum is used in the more critical cases but is often followed by symptoms of serum sickness.

A high caloric diet low in residue is given, 3,000 calories a day to ambulant patients. Glucose and sodium chloride may be given intravenously in fulminating cases, paregoric and codeine for pain and tenesmus, and powders such as bismuth or kaolin for frequent stools. Hot abdominal stupes are useful. Iodine, gentian violet and arsenic have been



used on occasion. Arsenic may cause an exacerbation of the colitis.

The treatment of tuberculous colitis is both surgical and medical and the medical treatment leaves much to be desired. Its success is proportional to the early diagnosis of the condition. Among drugs favored are arsenic, mercury and intravenous mercurochrome, stovarsol, calcium and parathyroid.

Treatment of amebiasis consists of emetine hydrochloride and arsenic in the form of treparsol or acetarsone supplemented by yatren or anayodin.

#### DISCUSSION

DR. E. T. JOHNSON, Kansas City: Several years ago we tried to duplicate some of Dr. Bargaen's work. In only one instance were we successful in isolating an organism which morphologically and culturally corresponded to this one. Inoculated rabbits, however, failed to develop colonic lesions. In many instances the organisms we isolated that resembled Bargaen's bacilli proved to be streptococci fecalis. Few investigators have confirmed Dr. Bargaen's work. Dr. Paulson isolated 10 different types of streptococci from a series of 14 cases. With these organisms he was able to produce lesions like those described by Dr. Bargaen in 50 per cent of rabbits inoculated. His opinion is that chronic ulcerative colitis is not due to a specific organism. On the other hand, Drs. Bradkin and Gray were almost uniformly successful in duplicating Dr. Bargaen's work and were also able to culture the diplococci from heart blood, the gallbladder and other foci in their rabbits, which is not surprising since each rabbit received as much as 50 c.c. of heavy bacterial suspension for five days.

Dr. Bargaen's presentation has almost convinced me in regard to the etiology of a specific type of colitis. He seems to have fulfilled all of Koch's postulates. I am not convinced that specific vaccine has any more virtue than foreign protein therapy.

DR. GEO. E. KNAPPENBERGER, Kansas City: Dr. Bargaen has convinced the vast majority of us that he has found the specific organism. Ulcerative colitis is not a common disease. Prior to 1927 only about 60 cases a year presented themselves at the Mayo Clinic. I have seen no more than twelve cases.

The disease is difficult to cure and subject to remissions. The lesions are characteristic and pathognomonic and a differential diagnosis can usually be made from the proctoscopic picture alone. This picture changes from day to day and the numerous hemorrhagic punctate erosions of the mucous membrane suggest a constant bombardment through the blood stream by some infective agent.

I was not able to duplicate Dr. Bargaen's results, probably because I failed to transplant cultures from the glucose brain broth media within 6 hours after inoculation, and the organisms might have been overgrown by colon bacilli.

Dr. Bargaen does not seem too enthusiastic about vaccine therapy but lays stress upon general symptomatic treatment. I use plenty of morphine to control the pain and peristalsis. After the patient is built up something specific may be done.

It seems reasonable to assume that a specific vaccine would do about the same for this disease as for others yet, unfortunately, no vaccine ever produced has seemed to act as a specific in any large group of cases although often doing a great deal of good.

A diagnosis of colitis seems to be popular for the roentgenologist. Dr. Bargaen points out that the factors are the history, sigmoidoscopic findings and, lastly, the roentgen ray. The roentgen ray is not

the most important. The only positive sign of colitis roentgenologically is the tubular gunbarrel bowel. Dr. Bargaen showed one negative of a colon with typical string appearance, generally called mucous colitis, but due in this instance to a large dose of castor oil, given in preparation of the patient to make negatives of the genito-urinary tract and resulting in this excess mucous in the bowel.

DR. W. A. BAKER, Kansas City: I want to ask Dr. Bargaen how frequently he finds evidence of spontaneous healing. In routine examinations I often find cases in which the rectal ampulla is almost a solid mass of small wheat-grain sized scars interspersed with small areas of mucous membrane. These patients usually have a spastic colon with no history of diarrhea.

I should also like to ask if he has ever reproduced this disease in animals by direct transplant of the diplostreptococcus to the intestinal mucosa, or does he feel that the infection is always hematogenous. My impression has been that it is difficult for any organism to invade a normal mucous membrane from the lumen of the bowel.

Does Dr. Bargaen feel that a lack of vitamins in the diet may be a factor in lowering the resistance of the intestinal mucosa to bacterial invasion?

DR. W. A. MYERS, Kansas City: Does Dr. Bargaen find evidence of polyglandular deficiencies in cases of sprue?

DR. J. H. JENNETT, Kansas City: A young man came to me complaining of passing bright red blood at stool. Examination revealed a red rectal mucosa which bled easily. Dr. Deweese reported the rectum and sigmoid narrow and smooth as of ulcerative colitis. Dr. Fred Campbell reported the rectal mucosa dotted with tiny ulcers and applied silver nitrate locally. Two months later roentgen ray revealed a narrow nonhausted colon up to the splenic flexure. Cultures obtained by direct smears from the mucosa produced colonies of gram-positive diplococci and suspensions injected into guinea pigs led to edema and mucous colitis. The patient, in bad shape, was sent to Dr. Bargaen's clinic where ileostomy was advised and refused. The entire colon became like a small garden hose. Vaccine therapy was started and in two months the patient came home improved. His weight eventually increased 50 pounds, stools were reduced from 12 to 4 a day and there was no blood. Treatment was stopped and now after a year he is worse again. A recent roentgen ray shows a large hausted cecum, small hausted transverse colon and string-like descending colon and sigmoid.

DR. BARGEN, in closing: Dr. Jennett's case now has scar tissue and stricture from destruction of the wall of the colon. Ileostomy may yet be considered.

Nonspecific vaccine has not proved as satisfactory in our hands as the diplococcus vaccine. A series of events in some cases does suggest both clinically and culturally that there may be several strains of organisms. Feeding and treatment of the mental condition are fully as important as specific vaccine administration, but I believe that giving opium may be overdone. A calorie-rich diet is usually rich in vitamins.

I have not been impressed by evidence of polyglandular deficiency.

I do not know the number of cases in which spontaneous healing has occurred but I think they are few. Many cases are wrongly diagnosed as chronic ulcerative colitis.

I have not been able to reproduce colonic lesions by local implantation of the organisms.

WOMAN'S AUXILIARY

OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.  
2nd Vice President, Mrs. H. B. Goodrich, Hannibal.  
3rd Vice President, Mrs. R. S. Kieffer, St. Louis.  
4th Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.  
Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. C. C. Cummings, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Livingston.....	Mrs. R. Barney, Chillicothe
Linn.....	Mrs. Ola Putman, Marcelline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

WOMAN'S AUXILIARY TO THE SIXTEENTH DISTRICT MEDICAL ASSOCIATION

The Woman's Auxiliary to the Sixteenth District Medical Association held an enthusiastic meeting in Nevada, January 22, at the time of the association's meeting. Mrs. L. H. Callaway presided. Work for the coming year was outlined.  
Mrs. C. B. Davis, Walker; Mrs. J. W. Dawson, Eldorado Springs, and Mrs. W. L. Davis, Nevada, were added to the membership.

NOTES

Mrs. A. B. McGlothlan, St. Joseph, president-elect of the Woman's Auxiliary to the American Medical Association, attended President Hoover's White House Conference on Child Health and Protection, February 19 to 21.  
Mrs. M. P. Overholser, Harrisonville, has been appointed chairman of public relation for Missouri as requested by the Woman's Auxiliary to the American Medical Association.

The Woman's Auxiliary to the Cape Girardeau County Medical Society has started a fund to be used in paying the expenses of some worthy girl in the training school for nurses in the hospital at Cape Girardeau.  
The Woman's Auxiliary to the St. Louis Medical Society is offering a prize to the member obtaining the greatest number of new members or reenlisting the interest of members who have become inactive.

The Woman's Auxiliary to the Greene County Medical Society has issued another yearbook and the Auxiliary to the Randolph-Monroe Society has printed a program covering a year's work.

LIVINGSTON COUNTY AUXILIARY

The Livingston County Auxiliary has been organized. Mrs. Reuben Barney, Chillicothe, was elected president.

SCHOLARSHIP FUND

The scholarship quota committee of the Woman's Auxiliary met on May 22, 1930, at the home of the chairman, Mrs. M. P. Ravenel, Columbia. Mrs. U. J. Busiek, Springfield, and Mrs. W. M. Bickford, Marshall, were the other members of the committee present. Mrs. C. M. Sneed, Columbia, first vice president of the Auxiliary, was invited to attend.  
Mrs. R. C. Haynes, Marshall, treasurer, reported that there were 532 paid-up members. The sum to be raised for the scholarship fund was \$500, therefore the quota of each member was ninety-five cents. The report to date follows:

County	Amount
Balance on hand Jan. 1, 1931.....	\$ 16.80
Audrain .....	7.00
Boone .....	20.00
Buchanan .....	35.20
Cape Girardeau .....	12.35
Clay .....	8.85
Cole .....	16.50
Greene .....	33.25
Jackson .....	140.60
Johnson .....	25.00
Lafayette .....	11.40
Linn .....	7.60
Marion .....	8.05
St. Louis City.....	128.25
Saline .....	20.00
Vernon-Cedar .....	1.90
	475.95
Total .....	\$492.75
MRS. M. P. RAVENEL, Chairman.	

TRUTH ABOUT MEDICINES

SULPHOCOL AND SULPHOCOL SOL NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry reports that Sulphocol is the proprietary name applied by the American Chemical Laboratories to a product claimed to be colloidal sulphur, containing 20 to 25 per cent of elemental sulphur, and that Sulphocol Sol is stated to be a 10 per cent solution of Sulphocol. The Council found Sulphocol unacceptable for New and Nonofficial Remedies because the therapeutic claims are unwarranted, because its composition was not in accord with the claims made, and because the evidence does not show that the product is of sufficient originality to permit the recognition of a proprietary name. In publishing its report of rejection, the Council explains that the American Chemical Laboratories have revised its claim of composition in accordance with the findings of the A. M. A. Chemical Laboratory and offered to delete one of the therapeutic claims objected to, but offered no evidence which permitted a revision of the Council's report in other respects. (Jour. A. M. A., August 23, 1930, p. 594.)



**THE RECTOR COMPANY DECLARED A FRAUD.**—The Rector Company, A. J. Major, president, and the J-L Manufacturing Company, Alexander City, Mo., were called on by the postal authorities last April to show cause why a fraud order should not be issued against them. According to the Solicitor for the Postoffice Department, the Rector Company's business consists in selling through the mails a preparation claimed to cure pyorrhea, including a liquid called "Pyro-Kil" (formerly called "Pyro-Nox") said to be composed of compound solution of cresol, U. S. P., glycerin and water, flavored with oils of clove and wintergreen. The evidence considered by the solicitor brought out that the product, Pyro-Kil, was manufactured and sold to the trade by the J-L Manufacturing Company, while the mail-order part of the business was carried on under the trade name of the Rector Company, both operating from the same address. The Postmaster-General notified the local postmasters to stamp all mail that came addressed to the Rector Company, A. J. Major, President, and J-L Manufacturing Company, fraudulent, and return it wherever possible to the senders. (Jour. A. M. A., August 23, 1930, p. 612.)

**THE VREELANDS QUACKERY AGAIN.**—Recently the Jour. A. M. A. published an article "The Vreelands Quackery" regarding a fraudulent grow-hair-quick concern run by one Clayt Vreeland, of Cleveland, Ohio. In this article it was brought out that among the testimonials used was one from a physician, Dr. C. J. Cannon. Dr. Cannon believes that the reference to his testimonial did him an injustice because it was used without his consent. The fact remains that he gave the testimonial and further that he should have been aware of its use. In 1928 a layman wrote to Dr. Cannon stating that he had read the data received from Vreeland and saw his letter there. The layman asked for the reasons why he considered the preparation good and Dr. Cannon replied that he considered the people honest and reliable and suggested that he call at their office for examination and advice. (Jour. A. M. A., August 23, 1930, p. 613.)

**THE MANAGEMENT OF OPIUM ADDICTION.**—Many of the so-called specific cures have been given fair trial by critically minded observers, but the results have been consistently unconvincing. This applies to rationally conceived proposals as well as to exploited products like "Narcosan" or the alleged secret Kahle treatment discussed in the German medical press. The conclusion of a British reviewer seems to be justified that it is now realized more thoroughly than ever before that the major problem is not to free the addict from his drug but to keep him free. Morphine addiction is not characterized by physical deterioration or impairment of physical fitness. Herein lies the hope that rehabilitation by any process may be satisfactory so far as the physiologic functions are concerned. The mental and psychologic problems are not yet so easily disposed of. Relapse is common to all methods of treatment and the question as to whether the withdrawal of the alkaloid should be gradual rather than abrupt may be discussed in the light of many reports. British opinion, with a few notable exceptions, seems to be in favor of a reduction treatment as the routine method of cure. (Jour. A. M. A., September 13, 1930, p. 801.)

## NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the

American Medical Association for inclusion in New and Nonofficial Remedies:

**AMYTAL.**—Isoamylethylbarbituric acid.—Amytal differs from barbital (diethylbarbituric acid) in that one of the ethyl groups of barbital is replaced by an iso-amyl group. The actions and uses of Amytal resemble those of barbital. It is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia. Amytal is also supplied in tablets containing  $1\frac{1}{2}$  grains. Amytal can be used before local or general anesthesia safely only by those who have had much experience and are familiar with the literature concerning such use. Eli Lilly & Co., Indianapolis.

**PULVULES SODIUM AMYTAL, 3 Grains.**—Gelatin capsules ("pulvules") each containing 0.2 Gm. (3 grains) of sodium amytal, the monosodium salt of isoamylethylbarbituric acid. The actions and uses of Pulvules Sodium Amytal, 3 grains, resemble those of barbital. The product is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia. Pulvules Sodium Amytal, 3 grains can be used before local or general anesthesia safely only by those who have had much experience and are familiar with the literature concerning such use. The pulvules may be administered by mouth or rectally. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., October 18, 1930, p. 1178.)

**ANTIPNEUMOCOCCIC SERUM, Type 1.**—An antipneumococcus serum (New and Nonofficial Remedies, 1930, p. 351) marketed in packages of one 50 c.c. double-ended vial with apparatus for intravenous injection. The National Drug Co., Philadelphia.

**ERYSIPELAS ANTISTREPTOCOCCUS SERUM.**—A specific serum containing the antibodies and antibacterial properties of *Streptococcus erysipelas*. For therapeutic use against erysipelas it may be of value when administered in adequate doses in the early stages of the disease. Though there is no evidence for the value of nonspecific antistreptococcus serums, there appears to be some evidence for the value of a serum representing the antigenic and antibacterial properties of *Streptococcus erysipelas*.

**ERYSIPELAS ANTISTREPTOCOCCIC SERUM—Lilly (Concentrated Globulin).**—The serum is obtained from horses immunized with strains of hemolytic streptococci obtained from human cases of erysipelas. It is marketed in packages of one syringe containing an average initial therapeutic dose. Eli Lilly & Co., Indianapolis.

**RICHARDS PSYLLIUM SEED.**—A brand of psyllium seed—N. N. R. (New and Nonofficial Remedies, 1930, p. 311.) Richards Pharmacal Co., Inc., New York.

**OINTMENT SCARLET RED BIEBRICH 8 PER CENT.**—An ointment composed of scarlet R medicinal Biebrich—N. N. R. (New and Nonofficial Remedies, 1930, p. 148) 8 per cent in a base consisting of stearin, wool fat and petrolatum. The National Drug Co., Philadelphia.

**TYPHOID-PARATYPHOID A VACCINE.**—This product (New and Nonofficial Remedies, 1930, p. 373) is also marketed in packages of three 1 c.c. vials. The National Drug Co., Philadelphia (Jour. A. M. A., December 6, 1930, p. 1745).

**ANTIRABIC VACCINE, Semple Method.**—An antirabic vaccine (New and Nonofficial Remedies, 1930, p. 352) prepared according to the general method of David Semple (phenol killed). It is marketed in packages of fourteen vials, each containing 2

c.c.; in packages of fourteen vials, each containing 2 c.c. and a syringe; in packages of fourteen syringes, each containing 2 c.c. Medical Arts Laboratory, Inc., Oklahoma City, Oklahoma.

**DIPHTHERIA TOXOID**—Squibb.—This product (New and Nonofficial Remedies, 1930, p. 364) is also marketed in packages of twenty 1 c.c. ampules of diphtheria toxoid and two 1 c.c. ampules of diluted diphtheria toxoid for the reaction test. E. R. Squibb & Sons, New York.

**NORMAL HORSE SERUM**.—This product (New and Nonofficial Remedies, 1930, p. 340) is also marketed in packages of one 50 c.c. vial. E. R. Squibb & Sons, New York.

**SODIUM GOLD THIOSULPHATE**.—**SODII ET AURII THIOSULPHAS**.—**GOLD SODIUM THIOSULPHATE**.—The complex salt formed from one molecule of gold thiosulphate and three molecules of sodium thiosulphate, containing approximately 37.4 per cent of gold. The use of sodium and gold thiosulphate in the treatment of lupus erythematosus is considered a distinct advance in the therapy of this condition. The beneficial and often curative action of the drug in a good percentage of cases seems to warrant giving it a definite place in the treatment of a disease for which at present there is no specific remedy. The drug must be used with extreme caution. Dosages at first advocated have been found too great, resulting frequently in severe and even fatal reactions. Even with smaller doses, accidents have occurred.

**GOLD SODIUM THIOSULPHATE**—Abbott.—A brand of sodium gold thiosulphate—N. N. R. It is supplied in ampules containing respectively 0.05 Gm., 0.1 Gm., 0.25 Gm., and 0.5 Gm. Abbott Laboratories, North Chicago, Ill.

**DIPHTHERIA TOXIN-ANTITOXIN MIXTURE** (Diphtheria Prophylactic).—This product (New and Nonofficial Remedies, 1930, p. 356) is also marketed in packages of one hundred and fifty 1 c.c. vials, fifty immunizations. The National Drug Co., Philadelphia.

**DIPHTHERIA TOXOID**.—This product (New and Nonofficial Remedies, 1930, p. 365) is also marketed in packages of five immunization treatments, in packages of fifty immunization treatments. For the two dose method of treatment the following forms are marketed: packages of one immunization treatment; packages of five immunization treatments; packages of ten immunization treatments, consisting of one vial; packages of fifteen immunization treatments, consisting of one vial; packages of fifteen immunization treatments, consisting of thirty vials; in packages of fifty immunization treatments, consisting of one hundred vials. The National Drug Co., Philadelphia.

**POLLEN ALLERGEN SOLUTIONS**—Squibb.—The following pollen allergen solutions—Squibb (New and Nonofficial Remedies, 1930, p. 27) are marketed in treatment set packages of three 3 c.c. vials: Ragweed Combined Pollen Allergen Solution—Squibb; Timothy Pollen Allergen Solution—Squibb. E. R. Squibb & Sons, New York. (Jour. A. M. A., December 20, 1930, p. 1913.)

## FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

**ARGO CORN STARCH** (Corn Products Refining Co., New York).—A refined corn starch of high purity.

It contains 86.95 per cent of starch. It yields 3.50 calories per Gm. (99.4 per ounce.) Argo Corn Starch is proposed for use in puddings, custards, ice cream, a wide variety of desserts, in bakery products, and for thickening gravies, sauces, pie filling, stewed fruits, etc.

**DROMEDARY GOLDEN DATES**, Pitted and Plain (The Hills Brothers Co., New York).—Pasteurized pitted or plain Mesopotamian dates in cartons. Selected Mesopotamian dates, pitted or plain, are washed, and pasteurized in ovens so that nonsporulating bacteria will not survive the treatment. Pits constitute 12.8 per cent of plain dates. The pitted dates contain protein, 1.7 per cent; fat, 1.9 per cent; total carbohydrates 73.0 per cent. Pitted dates yield 3.16 calories per Gm. (89.7 per ounce). It is claimed that the pasteurization makes these dates a safe food; they are an easily digested energy food for children and adults. (Jour. A. M. A., October 18, 1930, p. 1179.)

**KEMP'S SUN-RAYED PURE TOMATO JUICE** (The Sun-Ray Co., Division of Kemp Brothers Packing Co., Frankfort, Ind.).—A homogenized, pasteurized tomato juice seasoned with salt. The product contains total solids, 4.8 per cent; ash, 0.78 per cent; sodium chloride, 0.4 per cent; fat, 0.03 per cent; protein, 0.9 per cent; crude fiber, 0.1 per cent; total carbohydrates, 3 per cent. The vitamin C content is but slightly less than that of fresh untreated tomato juice. The product is claimed by the manufacturer to be a refreshing beverage, rich in vitamins A, B and C and valuable for infant feeding.

**WHITEFIELD GENUINE ORANGE JUICE** (Whitefield Citrus Products Corporation of California, Ltd., Fullerton, Calif.).—An unsweetened, uncolored, sterilized orange juice in hermetically sealed bottles or jugs containing a partial vacuum of low pressure. The product contains total solids, 14.2 per cent; acidity by titration as citric acid, 1.4 per cent; ash, 0.42 per cent; fat, 0.1 per cent; volatile oils, 0.01 per cent; protein, 1.1 per cent; reducing sugar, 10.1 per cent; total carbohydrates, 11.1 per cent. The manufacturer claims that the process of manufacture insures a uniform orange juice for use throughout the year, with a nutritional value practically that of fresh orange juice. (Jour. A. M. A., December 13, 1930, p. 1835.)

## PROPAGANDA FOR REFORM

**ROENTGEN DIAGNOSIS OF SYNOVIAL ADHESIONS**.—Another chemical adjunct to roentgen diagnosis seems to be available. With this new aid, altered permeability of synovial membranes can be determined and accurate pictures secured of synovial adhesions. This substance is a disodium salt of tetraiodo-orthosulphobenzoic acid. The substance is reported to be relatively nontoxic and to be well borne when injected. (Jour. A. M. A., December 6, 1930, p. 1749.)

**THE PROPHYLAXIS OF COCAINE AND ALLIED INTOXICANTS**.—A study to determine the efficacy of barbital compounds in the detoxication of local anesthetics has been made. The minimal tolerated and minimal lethal doses of cocaine, procaine and butyn for rabbits were determined without protection and after the administration of various depressants. The depressants found effective and in the order of their efficacy were urethane (ethyl carbamate), chloral hydrate, paraldehyde, barbital, phenobarbital, and isoamylethyl barbituric acid, the last named being the most effective. The investigators find that there are two types of intoxica-



tion into which clinical cases may be divided. One has a prolonged course and death results from primary respiratory failure; the other has a short course and death results from primary cardiac failure. The first type is reproduced experimentally by subcutaneous injection of cocaine, the second type by intravenous injection. Against this second type of intoxication the depressants are valueless. (Jour. A. M. A., December 13, 1930, p. 1839.)

NEW NAMES FOR OLD UNACCEPTABLE PROPRIETARY PRODUCTS.—The Southwest Medical Supply Company sends out advertising for "Onolin," "Aritine," "Amazine" and "Lesol." Those who read a recent discussion "The Horovitz Proteins and Lipoids Again" will recognize in the products named the ill concealed names of Gonolin, Arthritine, Asthazine and Luesol. Here is a group of the various names under which the Horovitz proteins and lipoids are marketed by various firms. The advertising circulars that are sent for one group are the same (except for the name of the product) as those sent for the other group, the genealogy of which has been traced from the original Horovitz mixtures, through the Merrell Proteogens, to the present products of the Lipoidal Laboratories, Inc. The advertising for each is a farrago of pseudo-science. (Jour. A. M. A., December 20, 1930, p. 1933.)

## BOOK REVIEWS

MANUAL OF PHYSIOLOGY. For Students and Practitioners. By H. Willoughby Lyle, M.D., B.S., (Lond.), F.R.C.S. (Eng.), Fellow of King's College, London, etc., and David De Souza, M.D., D.S.C. (Lond.), F.R.C.P. (Lond.), Physician to Westminster Hospital and Lecturer on Medicine in the Medical School, etc. With 3 plates and 138 figures in the text. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1930. Price \$5.25.

The authors are practicing physicians in London who still retain their interest in physiology. They discuss all the modern viewpoints on physiology but the book is especially desirable because it takes up biochemistry which is intimately connected with physiology. It is not a large and cumbersome discussion of the modern facts of physiology and biochemistry, but just about what we would expect of any well written and well classified textbook of physiology. The material is accurate and up-to-date, well outlined and classified.

This volume is especially recommended to physicians who wish to review physiology and biochemistry and to keep up with modern developments in these important subjects. C. H. N.

RADIUM IN GENERAL PRACTICE. By A. James Larkin, B.S.C., M.D., D.N.B., Radium Consultant on Staffs of Wesley Memorial, German Evangelical Deaconess, John B. Murphy, Washington Park Community Hospitals, Chicago, and St. Francis Hospital, Evanston; Instructor in Dermatology (Radium), Northwestern University Medical College. With twenty-eight illustrations. New York: Paul B. Hoeber, Inc. 1929. Price \$6.00.

This volume is rather encyclopedic in character without discussing the diagnostic elements of the diseases presented. Discussions on the pathology are brief. The indications for radium are rather

fully discussed and probably this is sufficient to the purpose of the book. One seems to gain the impression, however, that the author is simplifying the application of radium by the general practitioner entirely too much. The details of technic are somewhat lacking although the dosage problems are described satisfactorily. The author seems to depend upon the interstitial insertion of implants and surface applications and rather minimizes the possible advantages of needles with small radium element content per linear centimeter. In other words, he seems to glorify the possibilities of the general practitioner pursuing radium therapy without possessing radium.

It is quite generally conceded that the cancer problem requires the combined efforts of the radiologist, the surgeon and principally the pathologist. Larkin seems to infer that the equation is so simple that all that is required is to introduce a disease to radium and hope for results. It is far more important for the patient to come in contact with one who knows radium therapy and feels his responsibility than merely to come in contact with radium. While all that Larkin says is true the simplicity of radium therapy has been magnified beyond the ability of the general practitioner to apply his methods. We find no fault with the author's discussion of the extent and the value of radium therapy, merely with the failure to take the analysis of the pathological situation and the choice of radium technic more seriously.

E. H. S.

TROPICAL MEDICINE IN THE UNITED STATES. By Alfred C. Reed, M.D., Professor of Tropical Medicine, The Pacific Institute of Tropical Medicine Within the George Williams Hooper Foundation for Medical Research of the University of California. 60 illustrations. Philadelphia and London: J. B. Lippincott Company. Price \$6.00.

No book has impressed me so much as this one has for being practical, up-to-date and unassuming. It should be in the hands of every general practitioner in the United States regardless of where he is located.

Dr. Reed has approached his subject as an American clinician. The contents list, among other subjects, amebiasis, malaria, intestinal flagellates, rabies, bronchial spirochetosis, bacillary dysentery, undulant fever, tularemia, intestinal worms, typhus, splenomegalic diseases, deficiency diseases, the tinea, insects, and ailments due to hot climatic conditions. He gives a complete line of therapy, day by day for amebiasis. Unlike other authors who describe the intestinal flagellates he gives in detail the lines of treatment that have been tried and found valuable. The infectious jaundice of Weil he definitely connects with the specific spirochete whose presence in the disease is diagnostic, and he hints that the spiral body thought to be the cause of yellow fever but which is not identical with that of Weil's disease. He groups typhus fever, trench fever, Mexican tabardillo, and Rocky Mountain spotted fever under one heading and associates the Rickettsia bodies with them, but states plainly that from a practical point of view search for and identification of these bodies are of little diagnostic value, with but one exception, i. e., they may be found in the intestinal tract of lice fed on patients suffering with trench fever.

The chapter dealing with ailments due to high temperatures and high humidity is valuable for its

lucid description of symptoms and the pathogenesis involved, for the treatment suggested, and for preventive measures advocated. Anybody contemplating a trip to the tropics should study this chapter for his own protection. The three headings are, "Ocean Currents," "Cosmic Meteorology," and "Man's Best Climate."

With rapid transportation, extensive travel and exchange of goods tropical medicine is no longer limited to the torrid zones. A. S. W.

**MEDICAL JURISPRUDENCE.** A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B.S., LL.B., Member of the Chicago Bar; Lecturer Emeritus on Jurisprudence in the Medical and Dental Departments of the University of Illinois, etc. Third edition. St. Louis: The C. V. Mosby Company. 1930. Price \$3.50.

This is a third edition of a book that has already been judged of great practical value to the physician. The author presents his facts in a terse and simple manner and covers practically every phase of medical jurisprudence thoroughly.

Beginning with an introduction that includes a definition of law and its various aspects which touch upon the practice of medicine, the author explains in succeeding chapters what a court is and why the physician should know the meaning of court procedure.

The chapters on evidence and rules of evidence are very important to the physician because he is frequently in court and unless he understands some of the rules of evidence he may be easily misled. The facts concerning privileged communications are set forth very clearly.

Another chapter that is interesting to physicians deals with the time-worn question of the expert witness. Here are given the points on qualifications, conduct on the witness stand, the facts about the hypothetical question, the cross-examination of the expert, how medical books may be introduced into evidence and the status of the expert witness. Some very severe things are said about the expert witness most of which are undoubtedly true. Other chapters relate to employment and compensation agreements on surgical operations, civil and criminal malpractice, insanity, and practically every topic upon which the physician might be required to testify.

The book is written by an authority on this subject and is complete in every detail. The reviewer is familiar with most of large volumes on this subject but believes this little book will be of great service to physicians because it contains all the important points in a nutshell. R. B. H. G.

**CANCER OF THE LUNG AND OTHER INTRATHORACIC TUMOURS.** By Maurice Davidson, M.A., M.D., B.Ch. (Oxon.), F.R.C.P. (Lond.), Physician to the Brompton Hospital for Consumption and Diseases of the Chest, and Dean of the Brompton Hospital Medical School, etc. With a foreword by Arthur J. Hall, M.A., M.D., D.Sc., F.R.C.P., Professor of Medicine in the University of Sheffield. New York: William Wood and Company. 1930. Price \$5.50.

The increasing incidence of pulmonary carcinoma is sufficient to promote an interest in this excellent monograph from a reliable English source. The author follows the lead of American writers upon

this subject in preference to certain well-known continental authors.

In spite of the gloomy aspect of this subject the author has succeeded in developing an enthusiasm in the diagnostic problem involved. The importance of collaboration between the clinician and the radiologist is repeatedly stressed. The chapter on the radiologic interpretations is most commendable not only for the clarity of the descriptions but also for the excellence of radiographic reproductions. Modern accessory examinations, such as opaque injections, pneumothorax and bronchoscopy, receive an additional chapter. To complete the book the author wisely offers a chapter upon nonmalignant intrathoracic tumors.

This is a very good book. The author writes from experience and profound interest. While there is a reference to satisfactory contemporary literature the author cannot be accused of using it for other than comparative and worthy purposes. The index is excellent except for the absence of syphilis or lues from its listings. But who knows anything about syphilis of the lung, anyway?

There are twenty-two good case histories of cancer of the lung with ample and excellent radiographic illustrations. This is the only book upon cancer of the lung in the English language that has come to our library. Others that may come in time could use this book as a most commendable guide. E. H. S.

**RECENT ADVANCES IN NEUROLOGY.** By W. Russell Brain, M.A., D.M. (Oxon.), M.R.C.P. (London), Assistant Physician to the London Hospital, etc., and E. B. Strauss, B.A., B.M., B.Ch. (Oxon.), M.R.C.P. (London), Clinical Assistant to the Neurological and Psychiatric Clinic of the University of Marburg, etc. Second edition, with 39 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1930. Price \$3.50.

The second edition of "Recent Advances in Neurology" is an attractive book and easy to read. It covers practically all the topics in the field of neurology where real advances have been made since the first edition was published. Much important material has been contributed during the last ten years.

Two chapters are devoted to the cerebrospinal fluid, applied or practical anatomy and physiology are given particular attention, and the changes that occur in the cerebrospinal fluid from the time it appears from the choroid plexus cells until it reaches the lumbar cistern, are accurately depicted. The newer diagnostic methods, including encephalography, ventriculography, the use of cisterna puncture and lipiodol, are briefly but accurately considered. The normal cell count of the fluid is given as 2 to 3 lymphocytes per cu. mm. for the lumbar cistern and 0 for the ventricles.

During the last few years much attention has been given to posture and tonus, anatomy and function of the cerebellum, and the extrapyramidal syndromes. These chapters probably portray quite accurately our present knowledge of these subjects.

A chapter on normal and pathological sleep will interest all physicians.

The work may be recommended to any one interested in organic neurology and may be read with profit by the specialist, the general practitioner and the student. A. L. S.



**A MANUAL OF THE COMMON CONTAGIOUS DISEASES.**  
By Philip Moe Stimson, A.B., M.D., Associate in Pediatrics, Cornell University Medical College, etc. Illustrated with 40 engravings and 2 plates. Philadelphia: Lea & Febiger. 1931. Price \$3.75.

In this small book the author presents the essential points of the common contagious diseases in this country. It is up-to-date and includes recent work on the Dick test and the Schulz-Charlton reaction as well as a discourse upon the value of specific vaccines and serums as recently introduced. It seems to answer the purpose for which it was intended, i. e., an epitome on common contagious diseases for medical students and nurses. A. S. W.

**CHRONIC ARTHRITIS AND RHEUMATOID AFFECTIONS.**  
With Recovery Record. By Bernard Langdon Wyatt, M.D., F.A.C.P., Director, The Wyatt Clinic, etc. With the collaboration of Louis I. Dublin, Ph.D., Statistician, The Metropolitan Life Insurance Company, New York, and foreword by Dr. J. Van Breemen, Honorary Secretary and Director of Advisory Bureau, The International League Against Rheumatism, Amsterdam, Holland. New York. William Wood & Company. 1930. Price \$2.50.

The author of this book feels that chronic arthritis and allied states are of such widespread occurrence and produce such great economic evils that they are comparable in importance to tuberculosis. He believes therefore that a nation-wide propaganda in the interest of the control of chronic arthritis should be undertaken, as was done for the control of tuberculosis thirty years ago. The present work presents such a plea, advanced partly to the laity, partly to the medical profession. The result is a rather loose, discursive treatment, in many places too technical for the layman (or assuming too much background), very often unsatisfactorily general for the physician.

The merit of the book lies in its being one of the earliest attempts to attract attention to the scope of the subject and the economic losses caused by these diseases, which have hitherto and by many are still regarded as unavoidable evils. W. B.

#### ENDOCRINE STUDIES

This report by Allan Winter Rowe, Boston (Journal A. M. A., Oct. 25, 1930), deals with an approach from the opposite point of view and is concerned with the statistical analysis of a long series of patients in whom relative infecundity is correlated with an existing disease condition. The patients studied can be divided broadly into three major groups. The first group consisted of persons in whom a definite endocrine condition had been evaluated by a comprehensive diagnostic study, while the second were other patients in the same numerical series in whom the diagnostic investigation had both eliminated an endocrinopathy and demonstrated an existing pathologic condition of nonendocrine etiology. The third group, selected for control, was a consecutive series of 250 healthy women, all pregnant, drawn from a prenatal service. It appears that endocrine disorders do not result in a decreased number of marriages. The percentage of sterile marriages is highest in those showing ovarian disease, next highest in thyroid, and lowest in pituitary disorders. In the nonendocrine group studied, infertility was definitely less frequent than among those having endocrine disease. Even with the nonendocrine group the incidence of infertility is double that usually regarded as normal for the community.

#### ACAPNIA AS FACTOR IN POSTOPERATIVE SHOCK, ATELECTASIS AND PNEUMONIA

Yandell, Henderson, New Haven, Conn. (Journal A. M. A., Aug. 23, 1930), states that the causal sequence leading to surgical shock (apart from hemorrhage) and that leading through atelectasis to postoperative pneumonia are closely related. Both originate in acapnia, one through depression of the circulation, the other through depression of respiration. Acapnia, or deficiency of carbon dioxide in the blood and tissues, is a condition closely related to asphyxia, or deficiency of oxygen in the tissues. Either of these deficiencies disturbs the respiratory processes of the tissues, and each involves a considerable degree of the other. Experimentally, a slight degree of acapnia may be induced by over-ventilation of the lungs. A more intense form, capable of producing death by failure of respiration, may result from the excessive breathing in the first stage of badly administered anesthesia. But in the most severe form of acapnia leading up to surgical shock, the deficiency of carbon dioxide, or decrease of alkali bicarbonates in the blood, arises from a disturbance of the respiratory metabolism of the tissues analogous to asphyxia. Inhalation of carbon dioxide effects a restoration of the alkali bicarbonates and carbon dioxide content of the blood. The depression of the circulation after operation and anesthesia (nonhemorrhagic shock) is due to the lowered activity of the respiratory and other nerve centers that influence skeletal muscles. The result is an atonic condition of all the muscles of the body and a decrease of muscular pressure on the tissues which permits the blood to stagnate in the venules and decreases the venous return to the heart. This depression of the normal venopressor mechanism is counteracted by inhalation of carbon dioxide. The consequent increase of muscular tonus augments the venous return and restores the volume of the circulation. After every major surgical operation there is not only a decrease in the volume of air breathed but also a prolonged loss of tonus and relaxation in the thoracic muscles and the diaphragm. The vital capacity of the thorax is thus greatly decreased; the lungs are correspondingly deflated, and occlusion of pulmonary airways readily develops. The air in the occluded lobules, lobe or lung is then absorbed, and atelectasis is produced. If pathogenic organisms are present they find in the unaerated, undrained area conditions which favor their growth, and pneumonia may result. Inhalation of carbon dioxide by counteracting acapnia and inducing deeper breathing inflates the lungs and prevents the development of atelectasis. It is thus a specific preventive of the postoperative pulmonary complications that lead to pneumonia.

#### ROENTGEN EXAMINATION OF PARANASAL SINUSES AND MASTOIDS

During the past seven years in his hospital service alone Amédée Granger, New Orleans (Journal A. M. A., Nov. 1, 1930), has made more than 5,000 roentgen examinations of the paranasal sinuses and he is convinced that a careful study of the roentgenograms made in the two positions he advocates will furnish all the information necessary for a diagnosis. He admits readily that the injection of iodized oil in the sinuses will often bring out more clearly and with greater detail pathologic changes present in the sinuses, but he is also certain that in the vast majority of cases these changes could have been seen by more experienced or careful observers in roentgenograms made without the injection of the iodized oils.

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### BILATERAL STONES IN THE KIDNEY\*

JAMES R. McVAY, M.D.

KANSAS CITY, MO.

Calculus disease of the urinary tract has been an interesting study since the dawn of medical history. J. Swift Joly,<sup>1</sup> surgeon to St. Peter's Hospital for Stone, in a recent volume quotes the very interesting observations of Prof. Elliott Smith upon Egyptian mummies.

This Egyptologist discovered a stone in the pelvis of an Egyptian boy who died several centuries prior to the reign of Mena, the first King of Egypt. Mena's reign was somewhere around 4800 B. C. and 4500 B. C. The stone therefore would be about 7,000 years old. Professor Smith also found a stone in the nasal fossa of the mummy of a priest who died about the time of the twenty-first Egyptian Dynasty. The stone was triangular in shape and had other evidences showing that it was formed in the kidney pelvis. Its location in the nasal fossa is explained by the fact that Egyptian embalmers of the time were very careful to preserve all the tissues and organs of the body, and since the brain was removed through an opening into the skull through the soft cartilaginous tissue of the nose, this space was the most available for replacing the stone within the body after the embalming and bandaging had begun.

From the writings of Hippocrates (460-370 B. C.) Joly finds that this ancient clinician recognized and described renal colic with his usual clearness in the following manner:

An acute pain is felt in the kidney, the loins, the flank and the testicle on the same side. The patient often passes urine. Little by little the urine is suppressed. Some gravel passes with the urine. When gravel passes down the ureter it causes severe pain which ceases when it is expelled.

I doubt if any clearer description will be

found in any textbook written two centuries later.

Stones in the kidney and pelvis made up about one-third of all urinary stones in Joly's experience. Fifty per cent of the cases occur between the ages of thirty and fifty. Renal lithiasis is slightly more common in the male than in the female and the right kidney is affected with slightly greater frequency than the left. The greater number of stones are composed of calcium oxalate or phosphate.

Bilateral renal stone occurs in about 12 per cent of the cases having renal lithiasis, according to Thomas.<sup>2</sup> Braasch<sup>3</sup> found 12.3 per cent occurred in his service at the Mayo Clinic over a period of seven years. Boretti,<sup>4</sup> from the literature and his own experience, states that the frequency varies from 10 to 25 per cent. Hartman and Goldman<sup>5</sup> found 23.8 per cent bilateral stones but their series was smaller than those of the other authors. The frequency of the occurrence of bilateral stones is unquestionably sufficient to warrant a thorough understanding of the condition by all physicians.

It seems well for the purpose of discussion to divide the cases into two major classes, (1) the operable, and (2) the inoperable. There has always been a marked divergence of opinion as to the operativity of these patients, ranging from that of Hinman<sup>6</sup> who feels that almost all cases of bilateral stone should be operated upon, to that of Thomas<sup>2</sup> who feels that if stones are multiple or large the patients are rarely helped by surgical intervention. I believe that the very large, branched, multiple bilateral stones, with calcareous cortical abscesses and extensive damage to the kidney secreting substance, present a grave surgical hazard with very little benefit to be expected from operation. Also, in the cases of multiple, small pea-sized stones which pass readily through the ureter, the possible operative damage to the kidney and the possibility of overlooking some of the very small stones at operation outweigh the benefit to be derived

\*Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.



from operation. In other cases of so-called silent bilateral stones, the age of the patient, the cardiac condition, or, as in one of our cases, the associated diabetes, seemed to warrant placing them in the inoperable class.

I have observed three cases of multiple small stones in each kidney which we did not consider operable. The following is a typical example.

#### REPORT OF CASE

Case No. 2277. Woman, aged 44, physician's wife. Thanksgiving Day, 1927, she had an attack of pain which began in the right kidney region and radiated downward into the bladder and in about six hours she passed a stone the size of a pea. There was no fever. Six weeks later she had another similar attack on the left side and passed a small stone and some gravel for several days. She had two other attacks, the last one on the left side about one month ago when she passed some gravel. She has a dull, aching pain in the region of the right kidney most of the time. There were no urinary symptoms.

Blood pressure 108/74, pulse 68, temperature 98 4/5 F. General physical examination negative except for one dead tooth in right lower jaw. Urinalysis negative. Roentgen ray of urinogenital tract revealed multiple small shadows in the region of both kidneys.

Operation was not advised and fortunately she has had no further attacks. One of the other cases was a physician who has often had attacks of kidney colic. He passed stones while attending the National American Legion Conventions. The third patient after passing a series of stones from each kidney has been entirely free from pain for a period of almost two years.

One patient with multiple, large bilateral stones was most interesting and I desire to relate her history in some detail.

#### REPORT OF CASE

Case No. 744, woman, aged 34, married, first examined in May, 1925. Complained of kidney trouble. Had a severe attack of influenza in 1920. One attack of tonsillitis three years ago. There is some dyspnea but no cough. There is no palpitation or edema. During the night she passed urine three to four times and the same amount during the day without dysuria. She thinks she passed some blood about one year ago and this lasted for three or four weeks. Has passed none since then. Has lost about thirty pounds in weight since the onset of the illness.

Blood pressure is 118/80, pulse 128, temperature 98 F. Sallow and undernourished. Both kidneys easily palpable and the right is slightly tender. There is no edema.

Urinalysis shows the sp. gr. 1008, acid reaction, cloudy, albumin 3 on a scale of 4. Microscopic examination showed pus 4 in an uncentrifuged specimen. Roentgen ray of the urinary tract showed the right kidney enlarged to twice its normal size with two stones making an almost complete cast of the kidney pelvis, and multiple shadows in the cortex which were interpreted as calcified cortical abscesses. The left kidney showed the same enlargement with



Fig. 1. Case No. 744, showing large bilateral branched stones.

a large branched stone completely filling the pelvis and calices and multiple shadows of calcified cortical abscesses.

Operation was not advised and the patient was returned home to be put on forced fluids and bladder lavage. She was again examined four months later and stated that after spending three months in bed she had gradually gained in weight and strength. The urine appeared clearer and the frequency had diminished.

Her weight had increased to 127 pounds. Blood pressure was 142/92, pulse 128, temperature 99 3/5 F. Abdominal examination revealed palpable kidneys on each side with some tenderness on the right side. There was no edema of the extremities. Urinalysis showed a sp. gr. of 1014, acid reaction, cloudy, albumin 3, and the uncentrifuged specimen showed pus 4. An intravenous phenolphthalein showed an output of 100 c.c. of urine during the first hour with no return of the dye, and 100 c.c. of urine in the second hour with a 1 per cent return of the dye.

The hemoglobin was 50 per cent, white blood cells 12,000. The blood chemistry examination showed the urea nitrogen was 12.6 mg. per 100 c.c., the non-protein nitrogen was 83.2 mg. per 100 c.c., and the creatinine was 3.6 mg. per 100 c.c.

The roentgen ray examination of the urinary tract revealed little change in the stone shadows in the kidneys.

She was again examined in May, 1927, two years after her initial examination. She had influenza in November, 1926, and was confined to bed for nine weeks. During this time there was a dull aching in the right kidney. Her weight fell to 110 but she has now gained back to 117 1/2 pounds. There is a slight edema of the ankles at times. Nocturia two to three times, day four to five times.

Her blood pressure was 136/96, pulse 104, temperature 97. Palpation revealed no change in the kidneys.

Hemoglobin had fallen to 34 per cent, white blood count 6,300. Urine and phenolphthalein output exactly the same as at the previous examinations. The

urea nitrogen had risen to 42.6 mg. per 100 c.c. of blood and the creatinine remained at 3.6 mg. per 100 c.c. of blood.

In March, 1929, she writes: "I am feeling real well. I have no pain anywhere at present. I can walk eight blocks and back home. I weigh 123 pounds and have much better color than when you saw me last. I haven't been in bed a day this winter and I can do a good bit of work, doing most of the cooking for six every day. In regard to the urine it is better than it has been for years. I think I am getting along pretty good."

In March, 1930, I received a letter from the husband of the patient saying that she had died February 17, 1930, which was almost five years from the time she was first seen, by me.

In the weakened condition of this patient when I first saw her I cannot help but feel that her life period as treated was longer than it would have been had operative intervention been tried.

We have one other patient under observation at the present time who has a complicating diabetes as well as a small stone in the middle calix of each kidney and as the stones are causing no pain and the kidney function remains excellent we have considered him inoperable for the present at least.

We have had three cases which were considered operable after careful individual consideration, which I believe is most essential if the patients are to be treated successfully. There are several factors which should direct one's procedure. The most important problem is, which side to operate upon first. Braasch<sup>3</sup> in 1918 reviewed the statistics of 62 cases of bilateral renal lithiasis seen in the Mayo Clinic between January 1, 1910, and October 1, 1917, and suggested certain methods of procedure which in his opinion would secure the best operative results. He concludes that the kidney with acute complications should be operated upon first, but without complications the kidney with the better function should be operated upon first. Geraghty, Short and Schanz<sup>7</sup> agree with this statement in general but recommend operation on the painful side first where both kidneys are about equally involved. These authors strongly condemn complete nephrotomy as a dangerous operation and if likely to be necessary they advocate leaving such a kidney alone.

In order to emphasize the necessity for individual consideration of patients with bilateral stones in the kidney, I will recount the histories of two of our three operated cases.

#### REPORT OF CASE

Case No. 246. Woman, aged 36, married, first examined May, 1924. Her chief complaint was pain in the lower right side. Six years previously she had been operated upon for fibroids and a laceration

of the perineum by an excellent surgeon who remarked at the time that it was a peculiar operation to do for the type of pain which she complained of. She had only an occasional dysuria and no other urinary disturbance. The pain in her side began with the birth of her first child sixteen years ago. The pain is usually relieved by heat.

On physical examination her blood pressure was 132/90, pulse 100, temperature 99 3/5 F. There was a healed Pfannenstiel scar above the symphysis and slight tenderness in the right iliac fossa. There was a slight edema of the ankles.

Urinalysis showed sp. gr. 1022, acid reaction, albumin one on a scale of 4 and microscopical examination pus one on a scale of 4.

The roentgen ray of the urinary tract shows a stone shadow in the region of the pelvis of both kidneys. Upon cystoscopic examination pus one was found in the urine from each ureteral catheter. Phenolphthalein was injected intravenously and appeared from the right kidney in 10 minutes and 25 seconds with only a trace of the dye excreted in 15 minutes. The dye was excreted from the left kidney in 3 minutes and 40 seconds and the output was 17 per cent in 15 minutes. A right pyelogram was made by injecting the pelvis with 8 c.c. of 12½ per cent sodium bromide solution and caused similar pain to that complained of. The film showed the stone shadows included in the pyelographic shadow and a mild dilatation of the pelvis. Her blood findings were normal.

It was our decision to operate on the right side first and this was done June 20, 1924. Under ether anesthesia the right kidney was exposed through a Mayo kidney incision. The kidney pelvis was opened posteriorly and one large stone and three smaller ones easily removed. The opening in the pelvis was carefully repaired with 00 catgut and a pad of perirenal fat superimposed. Two penrose drains were placed just down to the opening and the wound closed in layers. There was slight urinary drainage for 24 hours. The drains were entirely removed by the eighth day. The patient was allowed up on the fourteenth day and discharged from the hospital with the wound healed on the sixteenth day.

Six months later the left kidney was operated upon in a similar manner. One stone in the pelvis and one in the lower calix were removed. The closure was the same as that of the first operation. There was no urinary discharge. After an uneventful convalescence the patient was discharged on the sixteenth day with the wound healed.

On March 25, 1929, in reply to a letter of inquiry she stated that at times she had some pain in her left kidney but her right side had never given her any further trouble. Her urine had not been examined since she left the hospital.

On January 13, 1930, she was again examined on account of some sharp pains in her left side which come on after heavy work and are relieved by heat and bed rest. Urinalysis at this time showed a sp. gr. of 1026, acid reaction, albumin 2, and pus 4. Roentgen ray examination of the urinary tract showed a stone in the pelvis of the left kidney, which was included in the pyelographic shadow. There was no evidence of dilation of the pelvis or calices. The urine from the left kidney showed pus 2 and blood 3 while the urine from the right kidney showed only traumatic blood. The intravenous phenolphthalein appeared from the right kidney in 9 minutes before its appearance from the left side.



The output from the right side was 6 times that of the left.

On March 10, 1930, the left kidney was operated upon a second time. There were some perirenal adhesions but no enlargement of the kidney or pelvis. The stone,  $1\frac{1}{2}$  by 3 by 1 cm., was easily removed, the pelvis repaired and the wound closed in layers with drainage. The drains were removed on the seventh day and the patient discharged on the fifteenth day.

It is not surprising that there was recurrence of the stones in this patient; most authors record such results. Brongersma<sup>8</sup> recorded recurrences in 14 of 36 cases operated on. Thomas records a recurrence of 30 per cent in his experience. However, I feel that this patient is in much better condition after six years than she would have been had no operation been done. The next history is also very interesting.

#### REPORT OF CASE

Case No. 1927. Man, aged 42, married, farmer. He was first examined August 15, 1927. He stated that about six years ago he began to have pain in the lower right side of the abdomen. He noted that after an early morning walk the pain would begin in the right side and radiate around to the back. One year after the pain began he was operated upon for chronic appendicitis and one year later a hemorrhoidectomy was done. The pain gradually grew worse and for the past three years the attacks were more frequent and of increased severity. Frequently the pain in the right side would be accompanied by an aching in the right testicle which would nauseate him and cause him to vomit. If he would lie down with his feet higher than his head he would feel all right in about twenty minutes.

The physical examination was essentially negative except for a slight tenderness over the right kidney. The urinalysis showed a sp. gr. of 1024, acid reaction, albumin 1 and, microscopically, red blood cells 1. The roentgen ray examination of the urinary tract revealed stone shadows in the region of the pelvis of the kidney on each side. Cystoscopic examination showed no evidence of infection in either kidney and the left kidney secreting the greater part of the phenolphthalein.

On August 26, 1927, the right kidney was operated upon and a large flat stone measuring  $1\frac{1}{2}$  by 3 by 1 cm. was easily removed from the pelvis of the kidney and three smaller stones were removed from the lower calyx by an incision into the kidney substance directly over the stones. The wound was closed in layers after carefully repairing the pelvis and drains were left in but were entirely removed by the eighth day. He was discharged from the hospital on the thirteenth day with the wound healed. Two months later the left kidney was operated upon and a similar stone was removed from the pelvis of the kidney. He was discharged from the hospital on the twelfth day with the wound healed. Roentgen ray examination made one month later showed no evidence of stone in either kidney.

On May 14, 1928, in reply to the regular hospital follow-up letter he replied: "I must say that I never felt better in my past life. Have no pain of any kind and have worked most every day since the first of January. I have weighed 180 pounds for the

past six years but now weigh 204 so you can see I must be some better. I can work at anything." On March 13, 1929, he replied to our follow-up letter as follows: "I feel fine and have no pain on either side and have passed no gravel. Also, I very seldom pass urine at night and I have no burning or irritation of any kind and no trouble getting the urine started so you see I must be almost physically perfect. Otherwise I feel fine and work at anything I have to do and then do some of my neighbor's work."

The third case operated upon presented nothing unusual in the findings except that three days after the first operation on the left kidney he passed three small stones from his right kidney making an operation on that side unnecessary.

The technic of the operations was as described in the case reports and presents nothing new but I believe it is important to emphasize two points in the operation. First, extreme care should be used in placing the patient in the proper position on the table so that the kidney may be easily exposed and the pelvis accurately isolated making the operation much safer and easier. Second, a careful repair of the incision in the pelvis of the kidney will obviate urinary drainage and allow an earlier and more perfect healing of the wound.

#### SUMMARY

1. Bilateral stones of the kidney occur in a little over 12 per cent of patients with renal lithiasis.
2. The cases of bilateral stones are readily classified upon well proven surgical principles into the inoperable and the operable.
3. This report deals with eight cases of bilateral stones in the kidney, five inoperable and three operable.
4. The results herein reported prove the necessity for thorough study, individual consideration as to the best method of procedure in each case, and careful operative technic if the best results are to be secured.

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## NEPHROPEXY AND URETEROPLASTY

FURTHER OBSERVATIONS ON THIS METHOD FOR RELIEF OF URINARY OBSTRUCTION AND PAIN\*

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AND

J. E. GLENN, M.D.

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Three years ago we reported our first 48 cases of nephropexy.<sup>1</sup> Since reporting that series we have performed the operation for kidney fixation on 45 additional cases together with numerous plastic procedures on the ureter and pelvis of the kidney and wish to report our experience and results.

Several valuable articles have been published, some in adverse criticism but more in commendation of the method. Smith and Ockerblad have shown that the visualized kink in the ureter is not the original cause but the result of some adhesion or constriction below interfering with normal peristalsis. Bumpus and Thompson have shown that deep inhalation exaggerates and makes manifest certain kinks that are not seen at rest or during exhalation. O'Connor has urged careful search for extraneous vessels, adhesions, bands, etc., and has reported highly satisfactory results in a series of 28 cases. Mathe, who has had a very large operative experience with ptosed kidneys, continues enthusiastic concerning his results in nephropexy. Stevens combines his plastic operations with nephropexy and reports excellent results.

In three cases we found stones not shown by the roentgen ray lodged directly in the angle of the kinked ureter, demonstrating that the kinks do offer some obstruction to the free passage of stones. The possibility of finding these nonvisualized stones in the ureter should be borne in mind at every operation on the ureter and kidney. Some of the bad results of nephropexy have been due to unrecognized stone in the ureter.

We have learned to make longer incisions in exposing the kidney and ureter so as to visualize the pelvis, the ureteropelvic juncture and the ureter well down to the brim of the bony pelvis. In several cases the obstruction was found to be a definite ring of fibrous tissue encircling the ureter just as it entered the dilated pelvis of the kidney. This constriction was exaggerated when the kidney was

forced downward so that complete obstruction occurred, making an excess of slack in the ureter. Retention of large ureteral catheters inserted through this ring has been repeatedly tried as well as dilatation by bougies up to 14 mm. but in only one case was a permanent result obtained by this method. A rather simple plastic procedure similar to pyloroplasty, except that all the layers including the mucous membrane are cut through, the incision pulled apart laterally and sutured in this new position, has given us uniformly good results in some 10 cases.

The next point of obstruction in the ureter is opposite the lower pole of the kidney. This obstruction is usually caused by a small aberrant artery crossing over the ureter to the lower pole of the kidney and fixing the ureter firmly at that point. It causes little or no trouble until the sagging of the kidney produces an acute bend in the ureter which interferes with normal peristalsis and distends the kidney pelvis accompanied by the usual symptoms of pain, nausea and hematuria. If the artery is very small the simplest procedure is to ligate and cut it thus freeing the ureter and relieving the symptoms; however, it must be borne in mind that this is an end artery and its ligation will cause an infarction of that portion of kidney tissue supplied by it. If the artery is of large caliber it is better to transplant the ureter to another portion of the pelvis and leave the artery intact.

In four cases we found strong fine threads of fibrous tissue enveloping the upper 5 to 10 cm. of the ureter, coming off of the pelvis very much as the ropes lead from the envelope of a balloon down to the basket. These bands have absolutely no elasticity; they fix the ureter in a perfect splint and interfere with peristalsis. Complete freeing and incising of all these bands has given uniformly good results.

The next point of acute kinking of the ureter and the one we have encountered most frequently is in the region where the ureter emerges from its close association with the peritoneum, usually some 10 to 15 cm. below the kidney pelvis. Here the ureter is rather firmly fixed as pointed out by Bumpus and Thompson, and, being more or less loosely attached above, is prone to bend sharply when the kidney descends sufficiently to cause the ureter to pull downward at that point. We have found very few kinks in this region not preceded by symptoms of pain and nausea and evidence of back pressure in the kidney pelvis with temporary relief afforded by the introduction of a ureteral catheter and drainage of

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

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Fig. 1. Nephroptosis, ureteral kink; young married woman; pain and nausea when on feet one hour. Nephropexy seven and one half years ago. Permanent relief.



Fig. 3. Young man; in reclining posture. Pain and nausea daily after working three hours. Lost thirty pounds.

the pelvic urine. Very frequently the kink makes the passage of the ureteral catheter very difficult or completely obstructs it. It is admitted that temporary kinks such as are produced by lowering of the diaphragm in deep inspiration cause no symptoms and require no attention.

Four cases have shown obstructing kinks in the lower third of the ureter. One had a small unrecognized stone directly in the angle of the ureter and two gave histories of injury to the side followed by inflammation. All showed marked adhesions about the area of angulation. Freeing of these adhesions and fixation of the kidney high enough to take care of the redundancy in the ureter gave complete relief.

In several cases a careful history enabled us to trace an initial injury, a fall or a blow

over the kidney region sustained several years previously, as the cause of ptosis or excess motility. Frequently the patient observed the symptoms following the injury for only a few days and then they disappeared while a destructive hydronephrosis progressed without subjective symptoms until infection and complete obstruction took place. Several patients complained of few or no symptoms until shortly before the kidney was found to be largely destroyed by infection and dilatation caused by malposition of kidney and ureter.

At least 20 patients had undergone appendectomy and 3 cholecystectomy without relief before the ptosed kidney was found and fixed. In 2 cases both an acute appendicitis and an infected ptosed kidney were found at the same time and relieved by operation. There has been one death in this series of 45



Fig. 2. Destructive pyonephrosis with ureteral kink producing obstruction. Too late for nephropexy. Nephrectomy.



Fig. 4. Same patient as figure 3; sitting posture. Nephropexy; ureter straightened; complete relief for past five years.



Fig. 5. Bilateral ptosis complicated by stones and infection left side. No symptoms on right side. Two large stones removed from left kidney followed by nephropexy and dissection of adhesions about left ureter. Complete relief and sterile urine for past six years.



Fig. 7. Unusual kink in lower third right ureter held by adhesions; ureter partially blocked by small stone in angle. Ureterolithotomy and freeing of ureter gave permanent relief.

cases, this death occurring two months after operation. It was a case of severe ptosis of the kidney with an unrecognized tuberculosis and stone in the pelvis. The stone was removed and the kidney anchored. After one month a diagnosis of tuberculous nephritis was made and the kidney removed. The patient developed acute miliary tuberculosis and died one month after nephrectomy, it being two months after the nephropexy.

Some physicians seem to be in doubt about the kidney remaining fixed in its restored position. In our series of 93 cases it has been necessary to operate a second time on but two kidneys and this was done because of adhesions forming about the ureter and not be-

cause of excess motility of the kidney. We believe our success in holding the kidney in its new position is largely a matter of technic and the adoption of the Kelly method by using moderately heavy nonabsorbable sutures and leaving the capsule of the kidney intact for strong traction. The purpose is to fix the kidney so that it will stay in a high position regardless of the movements of the liver and intestines and at the same time have a slight degree of motility in order to avoid the impact of jolts, falls, etc. This is accomplished by tying the upper stitch in the muscles between the eleventh and twelfth ribs instead of over the rib, and the two lower stitches into the muscle under the twelfth rib.

The success of the operation depends upon (1) the correctness of the diagnosis, i. e.,



Fig. 6. Young athlete. Right kidney in abdomen, badly infected; followed football injury. Lost forty pounds. Nephropexy. Complete cure, restoration of weight. Won place on varsity basket-ball team after operation.



Fig. 8. Advanced hydronephrosis. Plastic operation on ureteropelvic juncture established good drainage down ureter and relieved all symptoms. Opposite kidney similarly affected.



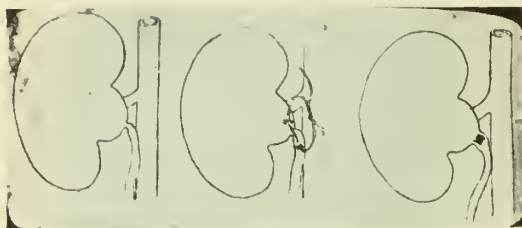


Fig. 9. Illustration of plastic procedure in Fig. 8.

knowing the kidney ptosis and the kinked ureter are causing the symptoms we wish to relieve; (2) upon a correct mechanical procedure to insure perfect mechanical drainage from the kidney pelvis to the bladder regardless of the patient's position.

The diagnosis is not always simple and requires the elimination of such pathological conditions as gallbladder disease, appendicitis, gastric and duodenal ulcer, abdominal and pelvic tumors, arthritis of the spine, as well as other conditions in the kidney and ureter. Considerable experience and sound judgment are necessary to guide us in the selection of the proper cases for operation.

Pain seems to be the most constant symptom, and it varies in character and in its radiation with each case. In most cases the pain occurs in the region of the affected kidney after the patient has been on his feet for a long period, following long auto or train rides, or after violent exercise. Nausea usually accompanies the acute pain. In order to connect this pain definitely with the ptosed kidney we must be able to palpate the tender kidney, or examine the patient through the cystoscope during an attack, pass a catheter into the pelvis, find evidence of urine under pressure and observe immediate relief on emptying the pelvis. Pyelograms must be taken in the horizontal and sitting positions in order to show the excursions of the kidney and the kinking of the ureter in the low kidney position.

Withdrawal of the ureteral catheters from the upper portion of the ureter is necessary for the ureterogram to show the kinks and points of obstruction.

Only one death in our series of 93 cases can be attributed to the operation itself. This was a case of general miliary tuberculosis two months after operation. Rest, forced feeding, supporting belts and corsets have been tried on practically all of our cases before resorting to operation although these aids are not always necessary. Only 2 cases required a second operation and these were performed for



Fig. 10. Illustration of three types of ureters which cause urinary obstruction and require operation for relief.

adhesions about the ureter and not for faulty position of the kidney.

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#### DISCUSSION

DR. ROBERT VINYARD, Springfield: Discussing Dr. McVay's paper, I would like to add two companion cases of bilateral stone and show a few lantern slides. One patient, a man aged 22, shows a large calculus in both kidneys and a large stone filling the bladder. The infection was an alkaline staphylococcus aureus. He constantly passed blood in the urine and finally had become a drug addict due to the severe pain in the bladder. Without attempting to remove the kidney stones we removed the stone from the bladder to relieve the tenesmus. At operation we found the bladder mucosa entirely destroyed and the submucosa adherent to the stone.

The other patient is a man 35 years old who gave a history of ten years of intermittent pyuria with chills and fever. He had a hemorrhage three months previously and passed small stones. The plate shows a large stone in the right kidney pelvis, a large stone in the upper ureter, and a large stone in the left kidney pelvis. Both kidneys were infected with staphylococci with alkaline urine. The function of the left side was very good, that on the right about 5 per cent. We removed the left stone first and then operated on the right kidney and removed the stone found there. Three years later he returned and the picture shows a large stone shadow in the right kidney region. In the meantime we had tried to clear up the infection and succeeded in the left kidney but not in the right. Operation was advised, with the probability that the kidney should be taken out. This was refused and six months later he returned showing 100 per cent increase in the size of the stone. I think the kind of infection is an important factor in this type of stone. It is always a staphylococcus infection with alkaline urine.

DR. NEIL MOORE, St. Louis: About a year ago I was requested to discuss a paper on urinary stones read before the Southern Medical Association when I had occasion to review about 150 of our case records in order to get at proper percentages. We found some very interesting cases, especially one group of large stones to which I would like to call your attention.

One case was of a man whose chief symptom was blood in the urine. On examination we found a very large stone filling the entire pelvis and the right ureter clear down to the opening, into which we could not pass a catheter. That stone was removed

by his physician at his home city and the man recovered.

Another case was of a woman, aged 37, with both kidneys and ureters filled with multiple calculi. She had practically no dye output though the blood nitrogen was within normal limits. Here, I want to congratulate Dr. McVay on his conservatism. We did not think ours was a case for operation and we proceeded to manipulate, opening the ureters and manipulating the stones to dislodge them, and were successful in doing so judging from the large number of stones that were passed. Two or three years later we made a picture and found just as many stones in the pelvis of the kidney as before. This woman had comparatively good health. She made a trip to Europe, several trips to New York, and finally when she would have an attack of pain we would pass ureteral catheters. Sometimes we removed stones and sometimes we only aided drainage. She suddenly died last year, seven years after our first observation, in uremic coma.

The medical profession is indebted to Dr. Burford for his work in nephropexy, because he has revived and popularized an old operation which is theoretically perfect but practically in certain instances, as he said, not successful. He has covered the subject well and I have to say only that there are certain indications and certain contraindications. When indicated I know of few operations that do more good than a nephropexy properly done and after thorough examination of the patient, as Dr. Burford has described. We have had two or three cases in which we did not feel an operation was justified, yet after thorough examination and elimination of everything else we exposed the kidney. In one or two instances we found only adhesions, in one case adhesions to the lower pole of the kidney, and in the others adhesions to the peritoneum. In a number of instances where ptosis or adhesions did not exist we can ascribe relief only to denervation of the kidney pelvis and upper ureter.

DR. R. LEE HOFFMANN, Kansas City: One point I want to bring out and which was the undercurrent in the papers of both Dr. McVay and Dr. Burford and was quite obvious in Dr. McVay's, is displacement of the kidney. The question of attack comes back to the fact that the kidney secretes urine which must be conveyed to the bladder. If we have obstruction, we have renal stasis; if not it predisposes to obstruction and renal damage which is permanent. In Dr. McVay's cases the large stones were more or less fixed therefore did very little damage excepting over a long period of time. It is the little stones that get down into the ureters and block them that cause the real damage. Therefore it is the small stone that usually requires surgical intervention. Dr. Burford showed slides of several cases with the stone in the pelvis; if the kidney is drained properly there is no cause for surgical intervention. It is the small stones that cause kinking of the ureters.

### SO-CALLED PYELITIS\*

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A patient with the syndrome comprising temperature, chills and pus cells in the urine may too often be accepted as suffering from pyelitis.

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.

We agree that the term pyelitis has been applied purely on an anatomic basis, as also have the terms pyelonephritis and pyonephrosis for the renal involvements. The arbitrary use of such terms leads to the inference that the lesions confined to the renal pelvis are a pyelitis, and as such are a result of an ascending infection from the lower urinary tract; also that a pyelonephritis is a further extension of this process beyond the pelvis of the kidney to involve the renal structures. If this be true the primary lesions of the parenchyma, such as an acute nephritis, renal infarcts and multiple abscess formations, must represent hematogenous types of infection. This premise we now know to be incorrect since it can be proved that a hematogenic infection may produce a lesion which is essentially confined to the pelvis, and also that the greater number of ureteral infections are hematogenic rather than ascending in origin. The term pyelitis should merely carry the inference that the condition involves the pelvis of the kidney regardless of the source of infection, whether ascending or hematogenous.

During their activity the infectious diseases may shower great numbers of bacteria through the renal structures and large amounts of bacteria may be found in the urine even though no pus or albumin is present. In such cases a persistent staphylococcus or colon bacillus infection may continue for a long time with no evidence of renal destruction. Assuming that all hematogenic infections may cause lesions in the walls of the tubules, it must follow that these renal infections are primarily a disseminated nephritis which later becomes a pyelitis or a pyelonephritis. Obviously, when hematogenic bacterial invasion or transmission through the renal tubules does not cause tubular lesions, or where lesions occur but heal rapidly and completely, the kidney does not become actively infected. Such cases are explainable as they would be elsewhere in the body, namely, by the balanced ratio between the number and virulence of the organisms reaching the kidney and the immune reactions in the renal tissues and in the body generally.

A predisposing factor to any infection in the urinary system is the production of a urinary stasis by an obstructive urologic lesion. To comprehend this question of improper pelvic drainage we must consider the anomalies which cause a dilation of the ureter and the renal pelvis by obstruction. These are:

1. *Congenital Obstruction.*—The double ureter either with the single pelvis or with separate pelves. The fused renal structures,



such as the well known horseshoe kidney and the crossed ectopia, in either of which the ureters are abnormally located and drainage interfered with. An abnormal blood supply to the kidney through an aberrant vessel impinging on the lumen as it crosses the renal pelvis to produce a dilation and a stasis. The renal ptosis whether congenital or acquired, most often referred to as a floating kidney, produces an extra length of ureter which angulates and becomes tortuous and is productive of a stasis. The megalo-ureter, due to a defective ureterovesicular valve, allows an efflux from the bladder.

2. *Mechanical Obstructions.*—(a) Intra-ureteral in origin. The mechanical obstruction partial or complete caused by a stone in the lumen of a ureter and lodged in any of the three ureteral spindles; or new growth in the renal pelvis, the ureteropelvic juncture, or the ureteral canal to cause a similar partial or complete obstruction. (b) Extra-ureteral in origin. The acute inflammatory changes which follow a suppurative salpingitis in a woman and an analogous seminal vesiculitis in a man can be responsible for a fibrosis or stricture formation which gradually becomes a definite contracted area. A similar condition from ureteral localized infection will also produce a stricture in that portion of the ureter.

Pregnancy is one of the conditions most frequently found complicated by a pyelitis, and the right pelvis predominates in susceptibility. This we feel is explained as due to the factor of urinary stasis. In the fetal development rotation and changes of position produce a pressure on the ureters as they cross the iliac vessels. A resultant hydro-ureter is found to be present to some degree in all pregnant women. This may be only a temporary circumstance and the ureters will soon return to normal following the termination of the pressure by the delivery of the child.

The above situation, however, has a more serious aspect and a different clinical picture is produced if the patient has had a previous illness that lowered tissue vitality. Invasion of this field of urine stasis by the colon bacillus or hemolytic streptococci, either ascending or hematogenous in origin, will rapidly resolve the condition into a case of urinary sepsis with its resultant temperature elevation, chills, leukocytosis and anemia, and pus, blood and albumin in the urine. Undoubtedly many such occurrences in pregnancy remain a simple infection in the upper urinary tract and respond satisfactorily to rest, forced fluids and internal therapy to increase renal elimination;

but the resistant cases which become progressively worse should have the benefit of a more careful consideration.

The following points of general consideration should be carefully noted in the examination and care of such cases: The history should include not only the manner and mode of onset and its development, but also whether a previous injury could have aided in the production of a stasis; the question of a previous infectious illness which may have given origin to renal infarcts; the family history as to renal conditions, especially of congenital anomalies.

The urine specimen should always be that of a catheterized collection and the analysis include a culture as this will determine the diet and the type and method of medication.

The determination of a threshold of a balance existing between the fluid intake and the output must necessarily vary greatly in different cases. It is essential that the records show the total 24-hour intake and output of fluid for each succeeding day as the patient with chills and an elevation of temperature accompanied by a diaphoresis will have a higher threshold than one who eliminates his quota of water through the urinary output. The maximum intake cannot be established; however, a minimum should be at least 1500 c.c. Should the patient be unable to take this minimum requirement it must be supplied each day by proctoclysis, hypodermoclysis, or intravenous administration as it represents the lowest limit of safety in body tolerance.

The test of renal function can be made in two ways, and here again it is our custom to balance these as an accurate check. We know that renal tissue eliminates waste products obtained from the blood stream, so that interference with the renal output will cause an accumulation of waste products in the blood stream and a determination of the blood chemistry will show an increase of waste products. The functional dye tests are dependent upon excretion by the same renal tissues. Therefore, with a low renal output and high retention of waste products we know we are dealing with some urologic obstruction. If this is not relieved by the proper administration and elimination of fluids a complete cystoscopic study is indicated.

The cystoscopic study must include an inspection of the urethral and bladder contour and mucosal coloring; the location and arrangement of ureteric orifices; the bilateral catheterization with opaque catheters of the ureters with resultant urine collections; separate renal function test; roentgen ray of

urological tract for calculi and misplacement of catheters; and, finally, a bilateral pyeloureterogram, depending entirely upon the judgment of the examiner after a careful consideration of the information obtained from the above procedures.

Cases of true pyelitis which fail to respond in a reasonable length of time to rational therapy should no longer be classed or treated as such, but should have the benefit of a thorough investigation, the examiner bearing in mind the type of infection, character of obstruction with resultant lymph stasis, and involvement of other urologic structures.

1019 Professional Building.

#### DISCUSSION

DR. FREDERICK C. NARR, Kansas City: I know of several cases of pyelitis that no matter what was done in the care of the urinary tract the patient did not recover. If we believe these are hematogenous infections the organism must be picked up somewhere and it is usually along the intestinal tract. I have in mind a woman who had pyelitis for a long time in pregnancy, was given all sorts of treatment of the urinary tract without result. Later a small fissure in ano was found and cauterized with prompt recovery from the pyelitis.

## PRIMARY CARCINOMA OF THE LIVER

### REPORT OF CASE

GEORGE GAY, M.D.

IRONTON, MO.

Carcinoma of the liver occurs rarely in the experience of the individual pathologist. Being an uncommon disease it is seldom diagnosed clinically and is greeted with greatest interest when disclosed at necropsy. This fact alone has added charm and interest to the study of the present case and we believe justifies its publication.

The early French writers were of the opinion that primary carcinoma of the liver was of greater frequency than any other form of liver carcinoma. Authentic cases first made their appearance in the literature in 1881 when Charles Sabourin reported four cases but the condition did not receive special attention until Hanot and Gilbert published the results of their studies in 1888. Further publications were more numerous, the most outstanding being that of Eggel's in 1901 who reviewed the literature up to that time, reporting 163 cases and adding a single case of his own.

The French writers classified carcinoma of the liver in three groups: (1) *Cancer nodulaire*, (2) *cancer massife*, (3) *cancer avec cirrhosis*; with a further microscopical classification of (1) *cancer alveolaire* and (2) *cancer trabecu-*

*laire*. This classification was altered by Eggel because of the frequent incidence of cirrhosis in all forms to the nodular, massive and diffuse forms. Yamagiwa, who published his work in 1911, offered the simple classification of "Hepatoma" to indicate all forms arising from liver cells, and "Cholangioma" to indicate those having their origin in the epithelium of the bile ducts. This classification is generally accepted at the present time as the most satisfactory microscopical means of differentiation.

Carcinoma of the liver occurs in all ages. Griffith reported 57 cases in children with an age incidence of from 1 to 16 years. Wollstein reported a case in a child of 4 months and Damsin compiled a series of 23 cases in children with an average age incidence under 2¼ years. The majority of cases occur, however, in patients of advanced age and are generally associated with histories of alcoholism, lues and with the excessive indulgence of appetites or with a long standing gastric disturbance suggestive of cholecystitis or cirrhosis.

The presence of malignancy here, as in all other portions of the gastro-intestinal system, is frequently betrayed by anemia and emaciation, though this is not an invariable rule. Following the appearance of a definite malignancy of the liver, life is seldom prolonged beyond 12 or 16 weeks. Jaundice was present in about 61 per cent of all cases reviewed, ascites in 59 per cent and an elevated temperature in 14 per cent, with a palpable tumor in about 20 per cent of cases. The majority of cases give a history suggestive of cirrhosis extending over a period of years. Eggel found cirrhosis of the portal and biliary type in 85 per cent of hepatoma and 50 per cent of cholangioma. Occasionally, the symptoms and history from the beginning point to hepatic disorders developing rapidly in previously healthy subjects. Again, cancer is disclosed in patients who have known a fatal issue from some other disease, notably cirrhosis or intra-abdominal hemorrhage.

The association of cirrhosis and cancer of the liver furnishes a topic of discussion in all works consulted and shows a wide range of opinion. The views expressed varied from a mere conjecture that their association is a coincidence to the opinion that cirrhosis is the cause of cancer or that it is the result of cancer. It is true that the incidence of cancer of the liver is rare in comparison to that of cirrhosis, yet the cirrhotic liver invariably shows an increased number of ducts and often isolated clumps of atypical, proliferating liver cells—a potential area of cancerous degeneration.

The regenerating capacity of the liver as ex-



hibited following inflammatory and destructive processes indicates its probable neoplastic possibilities. Experiment has proved that in lower animals excision of large portions of liver tissue is followed by astonishing restitution.

Clinically, the same capacity is exhibited following focal lesions produced by hemolytic agents, one of the most conspicuous being acute yellow atrophy. Such liver regeneration includes all elements and frequently produces irregular masses presenting bizarre appearances and generally simulating adenoma.

In the light of present-day knowledge one is inclined to accept the view that cirrhosis and its predisposing factors lead to degeneration and regenerative overgrowth, which may become excessive and neoplastic. Such a view is strongly supported by the work of Pirie, quoted by Fried, who reports 36 cases of primary carcinoma of the liver, 28 of them being associated with cirrhosis. All cases were found among the natives of South Africa in whom cirrhosis is a very common disorder, believed to be caused by the schistosomata. Such evidence becomes further strengthened by the experimental proof that schistosomiasis may cause cirrhosis in animals.

Many cases have come to autopsy disclosing multiple tumors of like size widely separated by areas of normal liver tissue and giving rise to contention regarding a unicentric or a multicentric origin. Winternitz and Karsner support the unicentric view, suggesting that spread is metastatic by portal and hepatic circulation. Van Heunkelon and Travis judged the origin to be multicentric basing their belief on the discovery of nodules of cancerous tissue containing a transitional type of cells. Recently, McIndo and Counseller have published an excellent report offering proof of the multicentric origin. Their case revealed three small carcinomatous areas of uniform size, two occurring in the right lobe, the third being found in the left. All three were of identical structure microscopically and thorough search failed to reveal any evidence of a vascular penetration which would make transportation possible.

Recent studies carried out under the direction of Evarts Graham have indicated convincingly that the blood supply to the right and left lobes is so distinct as to permit practically no intercommunication, which holds true as well for the lymphatics. McIndo and Counseller pointed to this fact and concluded that the only remaining possibility was that the nodules arose independently. Accepting the foregoing discussion regarding the predisposing possibilities of cirrhosis, one cannot well overlook the common picture of the nodular liver occurring in cirrhosis. Each of these nodules presents to a

greater or lesser degree a picture of regeneration and compensatory hypertrophy of liver cells. Such a contention would support the multicentric point of view. On the other hand, the multiplicity of tumors found in association with cirrhosis would indicate that such tumors arise simultaneously in many situations in the liver as a result of the over-stepping of the normal processes of repair.

The treatment of carcinoma of the liver has received little attention, primarily because the condition is so obscure as to render an early clinical diagnosis improbable. Operative cases have been reported in which superficial tumors have been removed and their cavities thoroughly curretted. One such case reported by Yoe-mans survived long enough to undergo operation for recurrence seven years later. This is, however, an individual case, the majority of cases succumbing to the disease within a short interval of time.

Primary carcinoma of the liver having its origin from the liver cell is termed hepatoma and that having its origin from the bile ducts is termed cholangioma. The first occurs as a single, massive tumor, made up of yellowish, friable tissue, sometimes sufficiently large to occupy a whole lobe. Extensive liquefaction, necrosis and hemorrhage are often present. The larger vessels may be invaded and thrombosed and stream metastases may be widespread. Histologically, the structure varies widely but always reveals some definite resemblance to liver cells. The cells may be arranged in cords of large granular acidophilic cells, the cell strands being widely separated by capillaries. They may occur as compact groups of small granular cells sharply bounded by vascular channels. In areas that have been softened by necrosis all trace of orderly arrangement may be lost, cells here being round, polyhedral or spindle-shaped and having multiple hyperchromatic nuclei.

The hepatoma may occur as rapidly growing multiple tumors in which cirrhosis is generally present. Here the liver is enlarged and contains numerous smaller tumors which are generally stained by bile or hemorrhage. The histological picture of these tumors may contain one or all of the types of cells previously described.

In cholangioma, the liver is notably enlarged and often the seat of advanced cirrhosis and containing numerous small firm nodules which often become confluent. Histologically, the prevailing structure is that of the adenocarcinoma or alveolar carcinoma. The cells are columnar or cuboidal, resembling the cells of the bile duct; the cytoplasm is clear, the nuclei small, vesicular and presenting numerous

mitoses; the stroma is abundant and is composed of vascular elements, elastic and connective tissue.

#### REPORT OF CASE

F. H., a man, aged 53, presented himself at Arcadia Valley Hospital in November, 1930, giving the following history: Five months previous to admission his illness started with a feeling of distention and occasional attacks of diarrhea, general weakness, jaundice, and loss of about twenty pounds in weight. He had noticed some swelling of the feet and ankles but suffered principally from diarrhea, distention and suffocation.

*Examination.*—An adult male weighing 157 pounds, 5 feet, 8 inches in height. The skin was loose and musculature had apparently wasted. The skin and mucous membranes were icteric. Teeth in poor repair and gums infected. No cervical adenopathy. Heart measured 11 cm. from midline to apex and there was a soft systolic murmur present over the pulmonary area. Action regular, pulse 108, blood pressure 130/82.

The lungs were essentially normal. The abdomen was full, rounded and firm; no fluid wave present. A nodular mass was observed in the epigastrium extending 9 cm. below the xyphoid process filling the costal angle. The mass was firm, tender and moved on respiration. It was definitely of liver origin.

A roentgen ray study of the gastro-intestinal tract revealed a large mass which displaced the stomach to the left. Urine analysis was negative. The blood picture showed a slight anemia and a leukocytosis of 11,600. Blood sugar 98 mg. per 100 c.c. Blood Wassermann negative.

A diagnosis of intestinal carcinoma was made. On exploratory incision a white nodular tumor mass about the size of a grapefruit was found in the liver substance, extending to compress the stomach. The liver was studded with numerous smaller masses.

Operative diagnosis of carcinoma of the liver (inoperable) was made and the abdomen closed without drainage.

A stormy postoperative course followed, exitus occurring on the eighth postoperative day. Autopsy was performed and all the essential pathology was found in the liver.

#### AUTOPSY

*Liver.*—Weight, 3000 grams. The left lobe is almost replaced by tumor growth. Other areas of similar tumor are in right lobe, averaging 40 mm. in diameter. On the inferior border of left lobe near anterior margin is a fluctuant, smooth, cyst-like formation, 6 cm. in diameter, which in situ extends down behind the fundus of stomach and rests upon the body of the pancreas. The cyst-like structure projects from liver and has a margin of liver tissue extending upon its sides. The surface of the tumor is smooth, pale yellowish gray, rounded with a central depression. The cut surface is dull white, homogeneous and shows central areas of necrosis and liquefaction. About seven-eighths of right lobe are not involved by tumor mass and show normal lobular markings. The gallbladder is large and distended but readily emptied. The common duct and first division of hepatic ducts are clean, patent and free. There is no enlargement of lymph glands along common duct.

*Gastro-Intestinal Tract.*—The stomach mucosa is clean and smooth. On the mesial border of cardiac portion there is a small, rounded, firm nodule,

8 mm. in diameter, which in situ lies in contact with tumor tissue in left lobe of liver. This nodule does not involve the mucosa. The duodenum, ileum and colon are free from tumor mass. The mesenteric lymph glands are not enlarged.

Microscopic examination shows wide areas of complete destruction of all cell structure. The stroma consists largely of a dense vascular network. Strands and clumps of cells in this stroma present all appearances and shapes. A few retain some semblance of liver cells, others are round, polyhedral and spindle-shaped and contain multiple hyperchromatic nuclei.

Arcadia Valley Hospital.

## INDICATIONS FOR PNEUMOTHORAX IN PULMONARY TUBERCULOSIS\*

SAM H. SNIDER, M.D.

KANSAS CITY, MO.

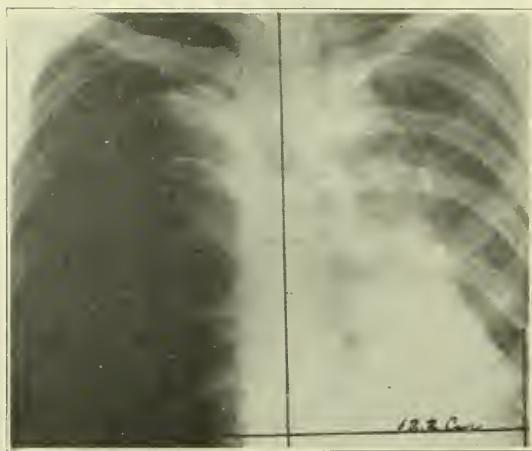
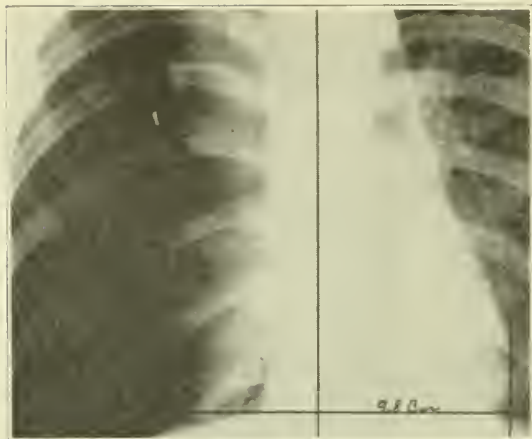
It is more than thirty years since Forlanini in Europe and John B. Murphy in America began the treatment of pulmonary tuberculosis with artificial pneumothorax. But artificial pneumothorax was not immediately accepted as a standard method in the treatment of tuberculosis for it was not until about 1915 that it began to come into general use by chest clinicians. With the widespread use of pneumothorax that prevails today, we might expect to find more or less uniform standards for its application. To date, however, no generally accepted and uniform rules have been formulated by which chest clinicians select their cases for pneumothorax. This is not altogether a bad condition for each case demands individual study and it is not possible to apply principles dogmatically to all cases.

*Severe Hemorrhages.*—Severe hemorrhage is one of the crises which we often face and in which we have heretofore been rather helpless. The application of pneumothorax to the bleeding lung usually results in prompt cessation of the hemorrhage. If the hemorrhage is severe and persistent it is positive indication for compression, provided it can be determined which lung is bleeding, and provided that the other lung is capable of carrying on the respiratory function. I am of the opinion that the only limitation on pneumothorax in such cases should be that the other lung be capable of carrying on the respiratory function. I do not believe that the ordinary precautions concerning the other lung should be observed so closely when severe hemorrhage is the indication for pneumothorax.

*Unilateral Cases.*—The unilateral case, without cavitation or showing only small cavities, is not one which would lead to argument. Such

\* Read at the 73rd Annual Meeting of the Missouri State Medical Association, Hannibal, May 12-15, 1930.





Figs. 1 and 2. Roentgenograms of chest in artificial pneumothorax. (1) Deep inspiration; (2) complete expiration. Note extent of mediastinal excursion and movement of heart toward opposite side with expiration. Presented to show mobility of the mediastinum.

cases if symptoms are not urgent may wait for a trial of three months' treatment with bedrest. If they have not done well at the end of three months' rest in bed, pneumothorax should be applied. In such cases the proper application of pneumothorax will usually obtain a good result. In the unilateral case with a cavity or cavities of large size and with positive sputum, compression by pneumothorax seems to me to be the method of choice, providing the cavities can be obliterated thereby. This is especially true if the symptoms are severe. In these cases with large cavitations healing is not likely to occur unless compression is instituted, and the compression not only facilitates healing but it usually clears the sputum of tubercle bacilli and thereby lessens the danger of infection in the other lung as well as the danger of spread to other individuals. In my experience almost every cavity which has been obliterated by artificial pneumothorax has healed. If a large cavity is present and is so near the surface of

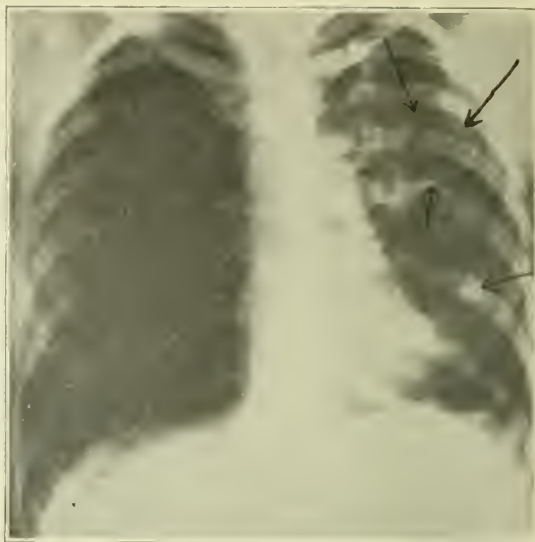


Fig. 3. Ideal case for pneumothorax. Unilateral infiltration with cavity. Patient extremely toxic before induction of pneumothorax. Arrows point to areas of infiltration and to outline of cavity.

the lung that extensive adhesions are inevitable, and compression of the cavity unlikely, immediate collapse may be postponed, providing the symptoms are not very urgent. If symptoms are severe and there is a pneumonic area which may be compressed, marked benefit may be expected from such compression even though the cavity remains open. In such a case compression is definitely indicated.

*Contralateral Involvement.*—When I began to use pneumothorax I was very wary of contralateral involvement, fearing that the increased expansion and contraction of the op-



Fig. 4. Same patient as figure 3 after two years of compression. Almost complete compression of left lung; right remains free of disease. Patient working for one year. Has no toxemia.

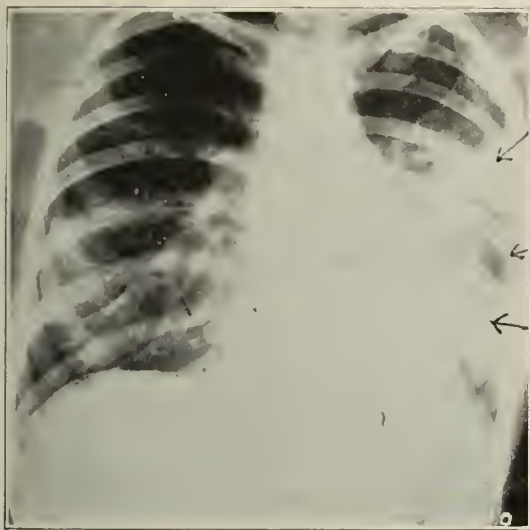


Fig. 5. Chest at time pneumothorax was first advised. Note extensive infiltration and consolidation in the left with cavity indicated by arrow.



Fig. 7. Same patient as figures 5 and 6, two months after commencement of pneumothorax. Note compression and absorption of infiltration in left lung. Pneumothorax space partially filled with effusion. Note decrease of infiltration in right upper.

posite lung would result in extension of the lesion in that lung. Further study of anatomical, physiological and pathological conditions in the chest has led to a marked change in this opinion. Today I am of the opinion that minimal or even moderately advanced contralateral involvement is not a definite contraindication to the application of pneumothorax if the condition of the worse lung definitely demands compression. Graham and Bell have shown that the mediastinum is a very elastic partition, and that variations in intrathoracic pressure on one side of the chest are accompanied by corresponding and almost equal variations of pressure in the opposite thoracic

cavity. Since the effects of pneumothorax depend not only upon rest, but also upon changes in lymphatic circulation, and since these circulatory changes in the opposite lung correspond more or less closely to those in the compressed lung it is logical to expect that compression of one lung may and often will result in benefit to the other lung. Furthermore, the relief from toxemia resulting from compression of the worse lung is a great aid toward healing of the better lung. If there is advanced disease in the contralateral lung the situation becomes rather difficult, especially if the changes are definitely



Fig. 6. Same patient as figure 5, three weeks later. Note multiple cavities in left and consolidation with small ulceration in right upper. Case has now become less favorable but still amenable to compression treatment.



Fig. 8. Same patient as figures 5, 6 and 7. Fluid has been almost completely removed. Fair degree of compression of left with definite deviation of mediastinum toward right. Infiltration in right upper as well as in the left upper almost completely absorbed.





Fig. 9. This patient has been kept on incomplete (partial) compression for one year. Symptoms not entirely relieved, patient still running fever and expectorating tubercle bacilli. Arrows indicate incompletely compressed lung with cavities. Very slight infiltration in the midportion of right lung field.

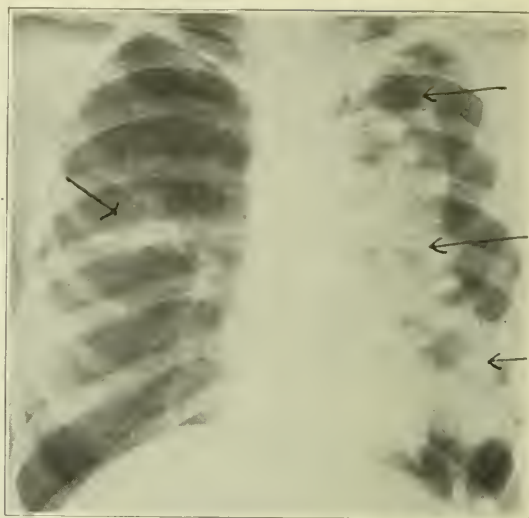


Fig. 10. Same patient as figure 9. Lung still incompletely compressed. Cavities remain open. Infiltration in right lung becoming more extensive.

pneumonic or consolidative in character. In these cases, unless the physical signs and roentgen ray findings are clearing up rather than advancing, pneumothorax is not likely to prove a benefit to the uncompressed lung. Here we are on the horns of a dilemma, both lungs showing extensive disease and neither of them showing a tendency to clear up. I have tried pneumothorax in a few such cases and have been uniformly disappointed; however, I am of the opinion that the outcome would have been the same regardless of the application of pneumothorax.

*Contralateral Cavities.*—Contralateral cavities, particularly those in the lower portion of the lung, are usually regarded as definite contraindications to the application of pneumothorax. It is logical to expect that a cavity in the middle or lower portion of the uncompressed lung would be subject to greater expansion, contraction, and massage by the respiratory movements after the collapse is instituted and that such increased excursions would delay healing. If the cavity is small and in the apex it may not be a definite contraindication to compression. I have compressed a few cases with contralateral cavitation and those with small apical cavities have usually done well; those with large cavities especially if located in the middle or lower portion have done badly. To sum up the question of contralateral cavitation, I am of the opinion that small apical cavities are compatible with the use of pneumothorax while larger cavities

or cavities in the lower half of the lung are a definite contraindication.

*Basal Lesions.*—I am of the opinion that basal lesions in the lung to be collapsed will do as well as any lesion,—unless adhesions are present. They usually collapse well unless adhesions or massive pneumonic involvement prevent compression. Basal lesions in the contralateral lung, like basal cavities, undergo too much massage to do well and are a definite contraindication to compression.

I do not advocate the application of pneumothorax in terminal cases for its application in a case already practically moribund may mean a hastening of the exitus, thus discrediting a splendid form of treatment and shortening a life.

*Delay.*—Early in my use of pneumothorax I always waited three months before trying compression in order to see what could be done without it. My opinion today is that such tactics may sometimes be incorrect. If symptoms are urgent and the case is at all suitable for pneumothorax, especially if there is extensive cavitation, immediate collapse may be used and will often save lives where a three months' delay means three months more of possible formation of adhesions.

*Economic Factors.*—Aside from purely scientific considerations of the patient's physical condition in determining whether or not pneumothorax should be used, one must consider economic factors. It must not be forgotten that in many cases pneumothorax restores the patient to activity in a few months when otherwise years would be required before he begins productive activity. Pneumo-



Fig. 11. Same patient as figures 9 and 10. Higher pressure used. Better degree of compression, cavity near apex remains open, effusion has occurred. Mediastinum deviated toward right, infiltration in right lung disappearing.



Fig. 12. Same patient as figures 9, 10 and 11. Very good compression of left lung. Fluid has been aspirated. Adhesions remain at apex. Mediastinum markedly deviated toward right. Infiltration in the right lung has disappeared.

thorax thereby becomes an immediate economic aid to the patient who is threatened with financial disaster, and if it can be obtained at a reasonable financial sacrifice it should certainly be applied.

*Control of Infection.*—Another factor influencing the decision as to whether we should use pneumothorax is that of infectiousness. As mentioned above, the compression of a cavity usually stops the expectoration of tubercle bacilli from that cavity and thereby lessens the danger of spreading the disease. In the case of a woman who must remain in contact with children this epidemiological consideration becomes very important and may be the deciding factor in the question of whether to compress or not. Propinquity to a good clinic or to a physician who is familiar with the use of pneumothorax is also a factor to be considered in the application of this method. The treatment should not be applied unless it can be continued for a reasonable length of time. If the patient is bedfast or has toxic symptoms it is not well to have him take a long journey to the office of a chest clinician. This matter should be discussed with the patient beforehand so it may be assured that he will continue his treatment for at least a reasonable period.

In conclusion, I would emphasize that no definite rules can be made for the application of pneumothorax unless the chest clinician is willing to stretch or even violate these rules at times. The whole question is an open and complicated one and each individual case demands careful study on its own merits. There is no portion of chest work demanding a finer judg-

ment than the application of pneumothorax. It must be kept in mind all the time that many of these cases are otherwise already hopeless and that many others will become hopeless unless pneumothorax is used. I am strongly in favor of using pneumothorax in most cases before its use has become imperative or impossible as I believe that by this method we will save many lives.

#### SUMMARY

1. Severe and repeated hemorrhages are indication for compression of the bleeding lung, provided the other lung is capable of carrying on the respiratory function.
2. The ideal case for compression is the one with the strictly unilateral lesion.
3. In case the cavitation is not extensive, three months of routine treatment should be tried before inducing pneumothorax.
4. If there is an extensive unilateral cavitation, pneumothorax may be considered for immediate application.
5. Minimal or moderately advanced infiltration of the opposite lung is not a definite contraindication to compression.
6. Basal infiltrations in the opposite lung are a contraindication to compression as such cases do not do well.
7. Contralateral cavities except the very small apical ones are a definite contraindication to compression.

713 Medical Arts Bldg.

#### DISCUSSION

DR. HOWARD H. BELL, St. Louis: Dr. Snider's paper is most interesting and full of important information. In regard to effusions it had previously



been our custom to withdraw the fluid with the idea of getting roentgen ray plates of the lung on that side in order to determine the amount of tuberculous involvement, which would enable us to decide whether it were desirable to sustain collapse therapy by the introduction of air, which had already been accomplished by the effusion. We were uniformly defeated by the coexistent thickening of the pleura which obscured lung markings in the roentgen ray plates. At present we do not remove fluid from the chest except when it makes patients uncomfortable from pressure. Of course we routinely remove a small amount for diagnosis.

Bullock made the statement that "tuberculous empyema is a fatal disease." This has not been our experience at Koch Hospital. Frequent and complete withdrawal of the tuberculous pus has been followed by a cessation of pus formation in a few instances.

When there is an associated pyogenic infection, rib resection is indicated without delay. Where the lung remains collapsed after the rib resection the space in the chest can be closed by subsequent thoracoplasty.

In regard to pneumothorax therapy, it is of interest that cases of extensive bilateral involvement, with hemorrhage from one side, forcing collapse therapy on that side, even in the presence of extensive involvement of the other lung, occasionally shows marked improvement in the uncollapsed lung.

One gets a great variation in degree of collapse. Partial collapse is often followed by marked improvement. The best results are obtained in unilateral cases associated with complete collapse. Our results were unfavorable irrespective of the degree of collapse in those cases showing greater involvement than one-third of the contralateral lungs.

The matter of reexpansion is of importance. It has been contended that the best results occur when the collapse has been sustained for a period of 24 to 30 months. The duration of collapse should vary in accordance with the type and extent of involvement of the lung prior to collapse, as well as the clinical course of the disease following collapse. We usually sustain the collapse for a minimum of six months. We have not been especially successful in reexpanding lungs. Very often the lung remains firmly adherent to the mediastinum and simply fails to reexpand; as the pressure decreases we have been forced to give air on account of associated pain.

In one case the lung reexpanded only at one point where it swelled out like a balloon. We feared that this inflated area might burst leading to infection of the pleural space and serious consequences. Fluid also collected. With the administration of air, the fluid and associated pain disappeared. This experience was repeated several times in this same patient.

Dr. Snider is to be congratulated on his splendid presentation of this important subject.

DR. FRANK G. MAYS, Washington: What do you mean by high pressure?

DR. SAM H. SNIDER, in closing: In regard to high pressure, we have never used as a routine a higher pressure than about 8 cm. of water in the manometer. I do not think higher pressures are safe in cases of adhesions because you might have a rupture and empyema. The doctor from down in Missouri whose plate I showed tells me he has used 20 cm. of water in the manometer in his own pleura, but I do not think that is very safe.

We do not consider the time limit important in the treatment of tuberculosis by pneumothorax. We have several cases that had compression for three months. One woman then had partial compression

and she is practically well today. She has not had any treatment for five years. You cannot make any rule in regard to the duration of time.

In regard to reexpansion, we study a relation between symptoms and physical findings and treatment in these cases. You must study each case individually, and any special rules are made only to be broken. That is why my paper is so general and not specific in regard to indications for pneumothorax. But we think we may have something worth while in the matter of using positive pressure in compressing the lung when there is disease in the opposite lung. Also, the other point I made, that the so-called bronchial asthmas may be due to low-grade tuberculosis.

## EARLY SYMPTOMS OF PULMONARY TUBERCULOSIS

A STUDY OF ONE HUNDRED THIRTY-THREE PATIENTS AT MOUNT ST. ROSE SANATORIUM\*†

ANDREW C. HENSKE, M.D.

AND

CHARLES W. EHLERS, M.D.

ST. LOUIS

To any one conversant with the tuberculosis problem it would appear rather trite to say that therapeutic measures in a given disease usually are more efficacious and meet with better end-results when the diagnosis has been made in the earliest stage. This is particularly true in chronic pulmonary tuberculosis, probably far more so than in any other condition. Failure to make a correct early diagnosis in this widespread disease is very frequently fraught with serious consequences. Not only does it materially affect the ultimate well-being of the one so afflicted but often is of untold harm to members of the immediate family and to all individuals who come into intimate daily contact with the sufferer. Cancer and lues are probably the only other important maladies where the same conditions may be said to confront the diagnostician. In malignancy the failure of early diagnosis will only affect the immediate well-being and ultimate recovery of the patient himself. This is obvious in the light of our present knowledge. Apparently, cancer is neither an infectious nor a contagious disease. Syphilis, by the very nature of its earliest manifestations, is readily recognized in the vast majority of instances. Failure of early recognition of syphilis is not so frequent with our modern laboratory facilities as it formerly was.

The recognition of the early case of chronic pulmonary tuberculosis depends upon several factors the most important being a careful history. The information derived from this pro-

\* Read at the annual meeting of the Missouri Tuberculosis Association, St. Louis, September 22-24, 1930.

† From the Medical Department of St. Louis University School of Medicine and Mount St. Rose Sanatorium.

Table 1. *Etiological Classification of Symptoms of Pulmonary Tuberculosis*

Group 1.	Group 2.	Group 3.
Symptoms due to toxemia and other causes acting generally	Symptoms due to reflex cause	Symptoms due to the tuberculosis process per se
Malaise	Hoarseness	Frequent and protracted colds (tuberculous bronchitis)
Lack of endurance	Tickling in larynx	
Loss of strength	Cough	
Nerve instability	Digestive disturbances (hypermotility and hypersecretion) which may result in loss of weight	Spitting of blood
Digestive disturbances (hypomotility and hyosecretion)	Circulatory disturbances, chest and shoulder pains	Pleurisy (tuberculosis of pleura)
Metabolic disturbances resulting in loss of weight	Flushing of face	Sputum
Increased pulse rate	Spasm of muscles of shoulder girdle	
Night sweats	Diminished motion of affected side	
Temperature		
Blood changes		

cedure is often sufficient without other aid to suggest the proper diagnosis. This information is primarily based upon the symptoms that lead a person to seek medical advice. Should the patient consult his physician at the very onset of his illness the symptoms will probably be of the early type. Correct interpretation and careful eliciting of these so-called early symptoms by the attending physician should be considered of prime importance. From the foregoing it would be logical to assume that in order for the practitioner to measure up to the above criteria he should at least be thoroughly conversant with all the possible symptoms and signs that in any way have a significant bearing in this disease.

A symptom may be defined as the expression of an infection or disturbance in the individual which he himself sooner or later recognizes. In other words, a symptom is a danger signal which warns the subject that something is wrong. For practical purposes symptoms are primarily subjective. The signs that are brought out by physical examination or the data that are obtained by the aid of the laboratory,—such as a positive sputum, a roentgenogram, an infectious blood picture, a tuberculin reaction,—come into the picture long after the early subjective symptoms have made their presence felt. Until the masses at large are educated to the point where they will voluntarily submit to an annual or semi-annual health survey the physician has no opportunity to put these diagnostic aids into practice. Therefore, at present we must chiefly rely upon our skill and ability to ferret out these early symptoms by means of careful history taking. These symptoms or group of symptoms should be to the well informed physician the clues which will automatically suggest to him the carrying out of the more or less reliable laboratory tests. In the average case he will not ordinarily have a sputum examination made or a roentgen ray taken unless he thinks it has a direct bearing on the case. Experience shows that unless the physician sees the direct relation of these early symptoms in their true light much time is lost and the patient fails to get

an early correct diagnosis until the disease becomes far more advanced.

What then are the symptoms that will tell us what is going on in the individual who comes to us for advice and treatment in the earliest stages of pulmonary tuberculosis. For practical consideration the best classification is one that is based on etiology. Such a classification was suggested a number of years ago by Pottenger.<sup>1</sup>

In table 1 we have a chart which embraces the symptoms and signs that one will encounter in the early stage of pulmonary tuberculosis. With the exception of a positive sputum no single symptom is definitely pathognomonic of the earliest stage. However, the presence of two, three or more of the symptoms mentioned would be highly suggestive of the earliest stage. From a clinical viewpoint it is readily seen that the importance of any single symptom would be to a great extent dependent upon the incidence of their relative frequency in a large number of cases. In order to determine the relative frequency with which the symptoms make their earliest appearance, we decided to make a survey of all patients undergoing treatment at the same time at Mount St. Rose Sanatorium. This study was carried out during a period of ten days, beginning on August 20, 1930. The inquiry included a complete list of all so-called early symptoms and also the following questionnaire:

- A. What was the average duration of the first symptom or symptoms before medical advice was sought?
- B. Was a correct diagnosis made by the first physician consulted?
- C. If correct diagnosis was made, was proper treatment outlined?
- D. Did patient, where correct diagnosis was made and proper treatment was outlined, faithfully follow instructions?

COMMENT

There were at the time 133 patients in the hospital. It was deemed necessary in order to obtain an adequate idea of the type of cases

1. Pottenger, F. M.: The Cause of the Various Clinical Manifestations in Pulmonary Tuberculosis, *Ann. Int. Med.* 2:1-20 (July) 1928.



we were dealing with to go over the histories carefully and ascertain what diagnosis was made at the time of admission. These diagnoses were based upon the history of the case, physical findings, roentgen ray report, sputum examination and blood changes. The classification adopted was that of the National Sanatorium Association.

Table 2. *N. S. A. Classification of 133 Patients on Admission at Mount St. Rose Sanatorium*

Type of Cases	Number of Cases	Per Cent of Total	Per Cent by Group	Per Cent of Group to Total
Under observation, doubtful or undiagnosed	5	3.7	3.7	
Minimal, A	1	.7	4.4	4.4
Minimal, B	4	3.		
Minimal, C	1	.7		
Moderately advanced, A	4	3.	22.4	
Moderately advanced, B	16	12.		
Moderately advanced, C	10	7.4		
Far advanced, A	3	2.2	64.6	90.7
Far advanced, B	24	18.		
Far advanced, C	60	44.4		
Terminating (dying within one week)	4	3.	3.7	
Tuberculous pneumonia	1	.7		

We were surprised to find that by far the greatest percentage of our admissions came under the head of far advanced, or so-called third stage, namely 87 out of 133, or 65.4 per cent. In the minimal or first stage there were only 6, or 4.4 per cent, in our group. In the second or moderately advanced stage there were 30, or 22.4 per cent. These figures tend to show that at least at Mount St. Rose Sanatorium very few patients are admitted who come within the classification of minimal tuberculosis, the very class from which we expect under suitable treatment to obtain the best results with the least amount of impairment. The 133 patients in this group represent a cross section of the inhabitants living within a hundred miles of St. Louis and come from all walks of life. When we realize that early cases will yield from 80 to 90 per cent of apparent healings, far advanced cases will yield from 10 to 20 per cent of apparent cures with from 80 to 90 per cent of less favorable results, it is clearly evident that an institution with an average of only 4.4 per cent early cases will not have a very promising percentage of apparent recoveries.

Table 3. *Most Frequent Early Symptoms*

Symptoms	Number of Cases	Per Cent
Cough	53	39.
Weakness	50	37.6
Gastro-intestinal	21	15.7
Lack of endurance	21	15.7
Loss of weight	19	14.2
Pleurodynia or pleurisy	12	9.
Hemorrhage	11	.8
Fever	9	.6
Nervous instability	5	.3
Hemoptysis	5	.3
Night sweats	3	.2
Hoarseness	3	.2
Dyspnea	1	.75

A study of table 3 reveals the fact that cough and weakness occurred most frequently, averaging 39 per cent and 37.6 per cent respectively and gastro-intestinal symptoms and lack of endurance 21 times, or 15.7 per cent. The term malaise was not used because it is really covered under loss of weight, weakness, and nervous instability. Frequently we found that patients were treated symptomatically for long periods of time, ranging from a few weeks to six or nine months without any apparent effort being made to ascertain their etiology.

Table 4. *Average Duration of Early Symptoms Before Seeking Medical Advice*

When Advice Was Sought	Number of Cases	Total	Per Cent
Immediately	14	50	
In one week	20		
In two weeks	8		
In three weeks	8		
In four weeks	14	55	
In six weeks	13		
In two months	11		
In three months	17		
In six months	6	28	21.1
In one year	7		
In over one year	15		
Total		133	100.

In table 4 an attempt is made to show the average duration of symptoms before medical advice was sought. It is surprising to note that 50 patients consulted a practitioner within the first three weeks, or 37.6 per cent, and that 55, or 41.3 per cent, sought medical advice in from one to three months, making a total of 105, or 78.9 per cent, who sought medical advice within the first three months from the onset of their illness. Only 28, or 21.1 per cent, sought consultation during the period ranging from three months to over one year. All the patients in the latter group were of the moderately advanced or far advanced type.

Table 5. *Percentage Diagnosed and Not Diagnosed*

	Number of Cases	Per Cent
Cases in which physician failed to diagnose tuberculosis	77	58
Cases in which diagnosis was correctly made by first physician	56	42
Cases in which diagnosis was correctly made by first physician consulted but physician failed to outline proper treatment and instruction	5	9
Cases correctly diagnosed and properly treated and instructed but not followed out by patient	45	80.3
Cases in which correct diagnosis was made, proper treatment outlined and carried out by patient	6	10.7

In table 5 it is apparent that failure by the first physician consulted to diagnose correctly occurred in 77 patients, a percentage of 58. In view of the fact that the 105 who sought

advice within the first three months totaled 78.9 per cent and were obviously at that time in an early stage of the disease, this failure in diagnosis would appear relatively much higher than the figures show because during the three months to one year period there were only 28, or 21.1 per cent, who were undoubtedly so far advanced that a failure in diagnosis would seem most improbable.

Correct diagnosis was made by the first physician in only 56, or 42 per cent, of cases. If we exclude the 28 cases in the period of from six months to one year, the percentage of correct diagnoses would be considerably less. Where there was a proper diagnosis, the failure to outline adequate treatment occurred in only 9 per cent.

Table 6. *Handling of Correctly Diagnosed Cases*

	Number of Cases	Per Cent
Correctly diagnosed	56	42
No instruction to patient	5	9
Proper instruction given but not followed	45	80.3
Proper instruction given and followed	6	10.7

In 45 of the 56 correctly diagnosed cases proper treatment was not carried out by the patient, a percentage of 80.3 per cent. In only 6 of the 56 was proper treatment outlined and fully carried out by the patient, a percentage of 10.7 per cent. This may probably be accounted for on the assumption that the general practitioner failed to stress the importance of treatment in tuberculosis as gravely as he would have done in syphilis, pneumonia, or other conditions.

In glancing over the literature we find that Williams and Hill<sup>2</sup> made an analysis of pulmonary tuberculosis in 1499 white patients over 15 years of age. They discovered that only 17 per cent were classified in the minimal or early stages at the time of admission to twelve different sanatoria. Their investigations also revealed that the five most frequent symptoms that cause patients to seek medical advice were in the order of their appearance and relative importance, as follows:

1. Cough accompanied or not by expectoration or an acute respiratory cold 1309, or 87 per cent.
2. Lack of endurance or being too easily tired 1245, or 83 per cent.
3. Loss of weight 1115, or 74 per cent.
4. Loss of appetite 805, or 53 per cent.
5. Pain in the chest, pleuritic or otherwise, 693, or 48 per cent.

Hemoptysis and pleurisy with effusion while presumptive evidence of tuberculosis were present in a comparatively small number of

cases. Hemorrhage in their statistics ranked eighteenth in importance.

#### CONCLUSIONS

We have endeavored to give an analysis of the various symptoms that occurred in a group of tuberculous subjects. The analysis reveals the importance of the direct relation the symptoms bear to the early recognition of the disease by the physician. Most of the patients seek advice early but their condition is not properly studied nor correctly diagnosed.

Every one realizes that there is no specific symptom-complex by which one may diagnose pulmonary tuberculosis. Any or every possible symptom may be present. There are however a few symptoms that should immediately direct attention to the possibility of a tuberculous infection. In view of the accepted opinion that every individual sooner or later becomes infected with this disease it is remarkable that physicians are not more tuberculosis-minded, so to speak, and consider tuberculosis first of all in patients between the ages of 14 and 60 who complain of vague symptoms. Were this so, there would not be the appalling number of far advanced cases that are encountered today. At one time they were all early cases. They never start as far advanced cases. Statistics plainly show that the individual usually seeks the advice of the profession rather early. Some practitioners hesitate to inform the patient that he is tuberculous. This is a serious mistake. We have never seen a patient die from the shock of being told that he has tuberculosis. But we have observed numbers of patients who have died because they were not informed in time. Much credit must be given to the physician who suspects a patient as being tuberculous. It is no easy matter to disprove the diagnosis. This always requires much work and serious thought.

Lawrason Brown<sup>3</sup> once stated that he would like to see a placard in every physician's office prominently displayed, reading: "Remember syphilis and tuberculosis. These are the two great simulators of other diseases. The parasites of each work under cover, in darkness, and when they become easy to detect the ravages of the disease are frequently so extensive that hope of recovery is gone and only a temporary arrest is possible. The detection of such a foe demands all the diagnostic acumen that one can command and, indeed, only when it is kept constantly in mind can it be detected early."

318 University Club Building.  
Mount St. Rose Sanatorium.

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HYPERTENSION ASSOCIATED WITH  
HYPOTHYROIDISM

REPORT OF CASES\*  
OLIVER ABEL, JR., M.D.  
AND  
J. W. THOMPSON, M.D.  
ST. LOUIS

The cardiovascular system shows many changes in diseases of the thyroid gland. The following cases are unusual in that they both showed hypertension associated with hypothyroidism.

REPORT OF CASES

Case 1. Woman, aged 63, complained of rapid gain in weight, lethargy, weakness, headaches, and vertigo. She had always been an active, hard-working woman; was married and had four children. Recently much weight had been gained in spite of restriction of diet. The right kidney had been removed fifteen years previously because of an infection. The menopause was at 40 and uneventful. She presented the appearance of having typical myxedema, with very noticeable swelling of the face, hands, legs and feet, and the characteristic "solid" edema of the subcutaneous tissues. The skin had a sallow hue. Her usual weight was 140 pounds; present weight, 191 pounds. The thyroid gland was not palpable. Percussion indicated that the heart was enlarged both to the right and left. The first sound was distant and there was a short apical systolic murmur. Rhythm was regular; rate 68 per minute. The peripheral arteries were sclerotic. Blood pressure 180 systolic and 100 diastolic; no signs of cardiac decompensation. Roentgen ray of the chest revealed the heart enlarged in all directions and slight dilatation of the aortic arch. Urinalysis showed specific gravity of 1.025, a trace of albumin and an occasional white blood cell. The nonprotein nitrogen was 28 mgs. Wassermann and Kahn reactions negative. Basal metabolism, minus 19.

Remarkable improvement occurred under thyroid medication. There was a marked change in her general appearance, the blood pressure dropped to normal and the size of her heart was reduced, according to the roentgen ray. A tabulation of the blood pressure readings follow:

Date	Basal Metabolism Rate	Blood Pressure S D	Thyroid Medication Thyroxin
1930			
Oct. 9	—19	180 100	
Oct. 16		170 100	1/160 gr. daily
Oct. 23		150 90	1/160 gr. daily
Nov. 3		145 85	1/160 gr. daily
Nov. 10		145 85	1/160 gr. daily

Case 2. Woman, aged 51, came under our observation two years ago complaining of palpitation, dyspnea, nervousness, weakness and profuse perspiration. She had been abnormally stout all her life, weighing over 200 pounds. Her weight had been reduced somewhat by restriction of diet. The thyroid gland had been noticeably enlarged for the last nine years. She was married and had two children. At the birth of her second child sixteen years previously she had a stormy time with a phlebitis of both legs and an infarct of the lung.

Five years ago radium was implanted in the uterus for a small fibroid. Complained of present symptoms for three years during which time Lugol's solution gave temporary relief.

The essential points in the examination were: Weight 195 pounds, abnormal distribution of fat about girdle, legs and arms. The skin had a sallow hue but was of normal consistency and possibly a little more oily than usual. Thyroid gland enlarged, firm, smooth, and the right lobe was larger than the left. There was a slight lid-lag and tremor of the fingers. The heart was not enlarged and sounds were of good quality. There was a short apical systolic murmur while recumbent. The peripheral arteries were soft and the pulse rate was from 100 to 110 per minute. There was a delayed drop of the pulse to normal after exercise. The blood pressure was 140 systolic and 80 diastolic. Urinalysis negative; blood sugar, 100 mgs.; nonprotein nitrogen, 31 mgs. Wassermann and Kahn tests negative. Roentgen ray of chest showed heart within normal limits. Basal metabolism, plus 29. After two weeks' rest and Lugol's solution the basal metabolism dropped to plus 5.

The patient was operated upon by Dr. J. W. Thompson and a large adenoma, two-thirds of it substernal, was found. It had replaced the entire isthmus and practically all of the right lobe of the thyroid. It was elevated easily and removed. The left lobe of the gland appeared normal and was not disturbed. Sections of the part removed showed colloid adenoma. The postoperative course was uneventful until the seventh day when she developed an acute appendicitis, necessitating an appendectomy. Two days later she developed a right-sided hemiplegia. The blood pressure at the time was systolic 180 and diastolic 95. Her convalescence was slow and stormy. The blood pressure rose to 200-220 systolic and 110-130 diastolic. Her appearance began to change. She was lethargic, the skin dry, the face emotionless and the color showed a more brownish tint. One month later the basal metabolism was minus 18 and she was placed on thyroid medication. A marked improvement followed, both as to her general condition and the reduction of blood pressure. A tabulation of the blood pressure readings follow:

Date	Basal Metabolism Rate	Blood Pressure S D	Thyroid Medication Thyroid Extract
1928			
Aug. 31	—18	188 134	
Sept. 14		180 96	3 gr. daily
Oct. 11	—17	184 100	3 gr. daily
Nov. 5		188 90	3 gr. daily
1929			
Jan. 28	— 9	170 85	6 gr. daily
Apr. 25	— 7	160 80	6 gr. daily
Aug. 16	— 2	145 76	6 gr. daily
Dec. 13	— 4	140 72	3 gr. daily
Apr. 10		142 75	3 gr. daily
1930			
Aug. 28	— 2	140 78	3 gr. daily
		130 75	Thyroxin 1/320 gr. daily

DISCUSSION

Case 2 is remarkable in that there was both a hyperthyroid and hypothyroid condition present, and as long as the effects of one balanced the other the patient was fairly well, but when one or the other predominated the resultant symptoms were marked. The vascular accidents noted in this case show the profound

\* From the Soper-Mills Clinic.

effect the thyroid gland has on the vascular system.

The myxedema committee of the London Clinical Society reported that arteriosclerosis is a frequent accompaniment of long standing myxedema. A majority of the cases of hypothyroidism and myxedema occur during the fifth and sixth decades of life, the time at which arteriosclerosis with its resultant changes in the body tissues usually takes place. It has been argued by many that the changes in the heart and the vascular system in hypothyroidism are due to the existing arteriosclerosis rather than the result of a lack of thyroid secretion.

Fishberg<sup>2</sup> reports a case of advanced arteriosclerosis with hypertension and enlargement of the heart in which the autopsy showed an extensive atrophy of the thyroid gland. Many clinical and pathological reports have shown arteriosclerotic changes with resultant granular contracted kidneys. Experimentally, von Eiselberg<sup>3</sup> observed that thyroidectomized sheep and goats showed arteriosclerosis. Zondek<sup>4</sup> and Fahr<sup>5</sup> have admirably described the myxedema heart.

Although not advanced to the stage of decompensation, Case 1 shows the dilated heart so adequately described by these men. The majority of the cases of arteriosclerosis, kidney damage and heart disease associated with hypothyroidism have had low blood pressure. The chief symptoms referable to the cardiovascular system described in textbooks are, sluggishness of circulation, slow pulse and low blood pressure.

Percy<sup>6</sup> reported cases of hypertension in which the blood pressure dropped and there was improvement in renal disease following thyroid medication. Fishberg's case<sup>2</sup> had hypertension. Recently, Duden<sup>7</sup> reported a case of myxedema with hypertension and cardiac enlargement that improved under thyroid medication.

Thyroid substances should be given cautiously as they are not without danger in patients with cardiovascular disease. Sturgis and Whiting<sup>8</sup> note the dangers resulting from improper administration. The patient should be observed carefully and the basal metabolism rate taken frequently. A basal metabolic rate is a very necessary diagnostic procedure in every case of hypertension.

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## SPECIAL ARTICLE

### HISTORY OF THE MISSOURI PACIFIC HOSPITAL ASSOCIATION\*

H. J. MOHLER

PRESIDENT, MISSOURI PACIFIC HOSPITAL  
ASSOCIATION

ST. LOUIS

On behalf of the board of managers and myself, I desire to thank all of you for your presence tonight as the guests of the Missouri Pacific Hospital Association and the Missouri Pacific Railroad. I hope you will enjoy the evening and your stay in the city. After last year's meeting we received favorable comments from many who were impressed with the splendid attendance and appearance of our medical staff. It has been well known at headquarters for many years that the members of our staff throughout the entire system are among the leaders in their profession and we have always appreciated the splendid loyalty of the staff to the hospital association and to the railroad management.

As is well known, the railroads are having considerable competition at this time from waterways, airways, bus lines, trucks and private automobiles, as well as through oil, gas and gasoline pipe lines. All this has resulted in considerable loss in revenue for the carriers. Your response to our request for assistance has been very generous, showing that you are always willing to cooperate in every way possible. Loss of business not only reflects on the revenue of the railroad company but results in loss of positions through reduction of personnel. Your continued assistance in an effort to solve these problems is very much needed. The railroad company and its employees do not ask for any special consideration—only for justice and competition on a fair basis. The very splendid clinics given in various guest hospitals I am sure will be of benefit to you and this splendid cooperation is appreciated by our board of managers.

We all regret that Mr. Baldwin, president of the Missouri Pacific Lines, was unable to attend this meeting as he would have had a mes-

\* Read at the St. Louis meeting of the Medical Association of the Missouri Pacific Lines, January 30, 31, 1931.



sage of great interest to you. I am sure you have read various statements issued by Mr. Baldwin from time to time in connection with the affairs of the railroad and his recent article, "Missouri Pacific Employees Operate Big Business," which appeared in the *Missouri Pacific Magazine* and some 140 newspapers, as well as on the menu of the Missouri Pacific dining cars. Mr. Baldwin said:

Railroad work naturally attracts the finest men and women in America, primarily, I believe, because it offers the greatest opportunity for service. And there is no happiness that can equal the soul-satisfaction that comes to an individual with the knowledge that some worth-while service has been achieved to make the world a better place in which to live. This is one of the reasons the Missouri Pacific Lines is a genuine "Service Institution." The wonderful morale of the Missouri Pacific organization has been remarked throughout the industrial world. Many have believed there is some mystery in it. Others suspect it is the result of lucky accident. It is neither. But it is worthy of note and comment because railroads generally, and the Missouri Pacific particularly, have drawn into their ranks the best of the citizenship and because, once engaged in it, few ever leave railroad work. As a result there has been built up over a long period of years a great industrial family. Missouri Pacific men and women are good citizens as well as good railroaders. They are valuable assets to every community in which they work and live. Their abilities are not limited to the field of transportation. Among other things, the employees of the Missouri Pacific themselves own and operate a hospital system that comes within the classification of "Big Business." The entire institution is owned, governed and operated by the employees and their representatives. This is only one of many reasons for the magnificent morale and *esprit de corps* of the Missouri Pacific family of 60,000 workers.

I am also happy to see so many of the board of managers and various officers of the Missouri Pacific Railroad present tonight, all of whom have shown great interest in our association and have always been willing and anxious to do everything to assist us to render good service: Mr. Cannon, whom I have known for more than a quarter of a century from the days when he was superintendent on the Southern Kansas Division; Mr. Wills, assistant general manager, who was kind enough to give me a position on this railroad nearly 27 years ago; Mr. Vollmer, assistant to the president; Mr. Brooks; Mr. Kirk, general superintendent; and many others who have worked with us for many years.

It is stated that in 1867 one of the four founders of the Southern Pacific Railroad rented a big house in Sacramento, hired a doctor and nurse and started the first railroad company hospital in the world to care for sick and injured railroad men. A few years later, or about 1872, Dr. J. W. Jackson, then located at Washington, Mo., opened the second railroad

company hospital at that point in a small building rented for that purpose to care for the employees of the Missouri Pacific Railroad and he was known as the first chief surgeon of the Missouri Pacific. A short time later this service was extended and his headquarters moved to Sedalia, Mo., and in addition to having charge of the Missouri Pacific Railroad, he also had charge of the Missouri-Kansas-Texas and the Wabash west lines. About 1874 Dr. Warren E. Outten was assigned to the duties as supervising surgeon in charge of the Iron Mountain Railroad and jurisdiction extended in 1876 over the International-Great Northern, the Texas & Pacific, the Wabash east lines and the Terminal Railroad Association of St. Louis. About 1878 the jurisdiction of Dr. Outten as chief surgeon was extended over the Southwestern lines, then owned by the Gould interests, and covered the Missouri Pacific, the Iron Mountain, the International-Great Northern, the Texas & Pacific and the Missouri-Kansas-Texas, while the jurisdiction of Dr. Jackson as chief surgeon was extended over the Wabash Railroad. The son of Dr. Jackson is now a member of our staff at Kansas City, Mo., and he is a past president of the American Medical Association.

The employees of the railroad through petition requested that some facilities be provided for the care of injured employees and as a result the first hospital owned by the hospital department, then known as the Employees Home, was opened June 1, 1880, in Carondelet, South St. Louis, in the Blow Mansion, the former home of Mr. Blow, then Ambassador to Russia. It was soon found that the facilities were inadequate and the second hospital owned by the hospital department was opened at 1600 California Avenue, St. Louis, which remained the general hospital from August 4, 1884, to August 3, 1923.

About 1887 through a reorganization, the jurisdiction of Dr. Outten as chief surgeon was assigned to the Missouri Pacific and the Iron Mountain Railroads only, which approximately covers the present jurisdiction of the Missouri Pacific Hospital Association with a few short lines acquired in recent years. The jurisdiction does not cover what is known as the Missouri Pacific Lines in Texas. Dr. Paul F. Vasterling entered the service of the hospital department in June, 1882, and succeeded Dr. Outten as chief surgeon in 1909. Dr. Vasterling held the position of chief surgeon until November 1, 1928, when he was appointed consulting surgeon, ill health having compelled him to retire from active service. He was succeeded as chief surgeon by Dr. O. B. Zeinert, our present chief surgeon, who has been a member of the St. Louis staff since 1909.

The Hospital department of the Missouri Pacific Railroad was under the direct control of railroad management until 1912, at which time a letter was issued from the office of the first vice president stating that the hospital service managed by the railway companies during its development, time of insufficient support, and while requiring the railway's credit to obtain its property and maintain the service and organization, now being self-sustaining, it was proposed, in compliance with the request of the employees, that those contributing to this service shall hereafter have direct control of the operation of such hospital service. Effective with August 1, 1912, the operation of the hospital service was conferred upon a board of nine managers composed of contributing employees and officers, four elected and four appointed, with the chief surgeon as chairman of the board.

A further reorganization of the board was authorized by the railroad management effective October 5, 1920, resulting in the adoption of a constitution and by-laws and included a change in membership dues or assessments. The constitution provides that four members of the board shall be appointed by the chief operating officer of the Missouri Pacific Railroad Company. The contributing employees of the Missouri Pacific Railroad Company and controlled lines are represented by their general chairman, one from each of the fourteen organizations. A fifteenth member, representing general officers, other officers and other employees not represented by the fourteen organizations, is nominated and elected from such employees. The reorganization has resulted in the elimination of a great many misunderstandings. The majority of the present board of managers, as well as the president, have held office since its reorganization in 1920. There is a regular annual meeting of the board held in the month of April each year. In addition to the annual meeting regular quarterly meetings are held in the months of January, July, and October of each year for the transaction of such business as may come before the board. Special meetings of the board may be called by the president on his own motion or by the written application of any three members of the board. Ten members constitute a quorum. The board of managers controls the affairs of the association with full power to decide in conformity with the constitution and by-laws. The officers of the association are elected by the board of managers at the first meeting following election and hold office for three years or until their successors are elected. The chief surgeon is appointed by the chief operating officer of the Missouri Pacific Railroad Com-

pany, and he appoints all assistant surgeons, physicians and specialists, subject to the approval of the president and review by the board of managers.

The membership includes all officers and employees of the Missouri Pacific Railroad Company, all employees of the Missouri Pacific Hospital Association and may include all members of such other lines in which the Missouri Pacific Railroad Company may own a majority of the stock as the board of managers shall decide to receive into the association, under such rules and regulations and with such exceptions as the constitution and by-laws may prescribe.

In 1922, by authority of the board, the officers incorporated the association by decree of court under the provisions of the Missouri statutes which provide that no profit or gain can ever accrue to any one and all properties are held in the name of the association.

Ground was broken for the erection of a new St. Louis hospital on September 24, 1921; the building was dedicated on July 28, 1923, being formally opened on August 3, 1923. The hospital occupies one of the highest points in St. Louis, overlooking Reservoir Park at Grand Boulevard and Shaw Avenue. There are six stories in addition to the basement with an annex for negro patients, with a capacity of 300 beds. A bond issue of \$350,000 was authorized as of August 1, 1922, on the St. Louis hospital, payable in 20 years, with \$17,500 payable as of August 1 each year. In 1928 additional ground was purchased for a nurses' home, and the total cost of ground, building and equipment at St. Louis is \$1,120,000.

Ground was broken for the erection of a new district hospital at Little Rock, Arkansas, August 7, 1923; the building was dedicated on January 10, 1925, being formally opened for patients January 26, 1925. This hospital is on a bluff overlooking the Arkansas River on Lincoln Avenue. There are five stories, solarium and basement, with 135-bed capacity. Total cost of ground, building and equipment was \$745,000. A bond issue of \$250,000 was authorized as of November 1, 1925, on the Little Rock hospital, payable in 20 years, with \$12,500 payable as of November 1 each year. Both bond issues were purchased entirely by members of the association.

Total investment in hospital facilities is \$1,865,000 with outstanding first mortgages of \$365,000, leaving a balance of \$1,500,000, to which should be added other assets held by the association, making the total assets of this association \$1,650,000 above all liabilities as compared with assets of \$350,000 as of December 31, 1919, just previous to the reorganization of the board of managers, or an increase of



\$1,300,000 within a period of eleven years. During this time the association erected and financed the new hospitals at St. Louis and Little Rock as well as made great improvements in the service at various other points. Income is derived only from monthly dues or assessments from members of this association. The income for the year ending December 31, 1930, was approximately \$670,000 or a decrease of \$75,000 as compared with 1929. The operating expense for 1930 was \$595,000 or a decrease of \$65,000 as compared with 1929 and in addition \$30,000 applied in both years to the sinking fund to retire the mortgage and interest on funded debt, leaving an income balance of approximately \$22,000. I am sure that everyone is familiar with conditions during the last year and with the tremendous loss in business for the railroads, all of which resulted in reduction in forces, and it was only natural that this association would likewise suffer in its revenue. However, through the hearty cooperation of all concerned we were able to handle our affairs in such a manner as to make indeed a very splendid showing. There has been a great deal of discussion among the hospital executives and boards of trustees and managers in regard to financial affairs of hospitals, more especially during the last several years when it has been found very difficult for them to meet expenses and a great majority showed heavy deficits. The officers of this association do not believe in deficits and are confident, if hospital business is conducted the same as any first-class business should be conducted, that it is possible to live within the revenue provided and take care of all necessary fixed charges, including sinking funds.

At various meetings of the American Hospital Association, the American Medical Association and American College of Surgeons, the question of proper personnel for hospitals has been discussed. We believe that without any question we have proved that the present system in effect in our association is sound and will bring the desired results. Proper service can only be rendered by applying sound business methods and an executive in charge of business matters and general supervision, with a medical director or chief surgeon in direct charge of medical and surgical service, and we feel sure it is only a question of time until other hospitals and associations will adopt this or similar methods.

The hospital is a complex institution combining medical service, business responsibilities and community relations and requires skilled administration in order to care adequately for the sick and to utilize funds with economy. Hospitals in the United States involve almost a

billion dollars actual expenditure, at least four billion dollars of invested capital, the employment of over 600,000 persons, and the care of 12,000,000 sick persons annually. Fine buildings, elaborate equipment and expert personnel mean little if the spirit of the institution is not right. A hospital charged at all times with so serious a responsibility as life and death must have a personnel competent in their respective fields and rendering a high grade of service tempered with such qualities as tact, kindness, sympathy, interest and other attributes of personality and character so much needed in this work. Hospitals today are becoming a greater public service in being brought to the maximum point of safety and efficiency so far as present knowledge of medical science and hospital service can be applied. During the last fifty years, hospitals have increased in the United States from 150 to 7500 and hospital beds from 35,000 to 860,000, a growth in beds about fifteen times faster than in population.

In addition to St. Louis and Little Rock, the association provides hospital facilities at Kansas City, Missouri, and emergency hospital service at 56 other points, as well as medical and surgical attention and medicine at an additional 257 points, making a total of 316 points on the Missouri Pacific Railroad where surgical and medical attention and medicines are furnished.

The staff of the association consists of 580 physicians, surgeons and specialists. The total number of patients treated in the hospitals during 1929 was 7,429 with 90,255 hospital days. Fifty-two per cent of all patients are treated at the St. Louis hospital, 32 per cent at the Little Rock hospital, 6 per cent at the Kansas City hospital, and 10 per cent at all other points. In addition, the number of patients treated as outpatients in the various clinics was 142,886, total prescriptions furnished for medicine 118,026.

There is also provision made for the care of members of the association suffering with pulmonary tuberculosis. For those who require sanatorium care, a period of 14 months is allowed; where such care is not required a special allowance is made to assist them to regain their health during the time they are not able to perform service for a period not to exceed 36 months. Since 1920 in excess of \$175,000 has been expended for this service.

We have been very much pleased with the splendid service rendered by our medical staff in Colorado Springs where sanatorium arrangements are in effect for the care of our members suffering from tuberculosis. During the last two years 48 per cent of the patients sent

there have been returned as arrested cases which enabled them to return to their positions; in addition, a considerable number were able to return to some other kind of work.

Since January 1, 1920, 65,000 patients were treated in the hospitals, resulting in 900,000 hospital days, also a total of 1,260,000 out-patients were treated at various clinics and at doctors' offices, not including patients referred to specialists at their offices for treatment or first aid treatments, rendered by graduate nurses and others in charge of first aid stations. A total of 1,360,000 prescriptions for drugs and medicines were filled, all of which resulted in an expenditure of more than \$5,550,000 for operating expense.

It is essential that the association have sufficient funds to render efficient service and to handle its affairs in a business-like manner, but the sole purpose of the association is to render service to its members, having ever in mind the best interests of the patients.

1755 South Grand Avenue.

#### THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The pages of popular magazines, of newspapers and of medical journals contain an increasing number of advertisements of food products. The growers, producers and distributors of such products have learned the value of the health appeal. Great campaigns are being promoted by cooperative organizations in favor of meat, of flour, of vegetables, of fruits, and of other natural foods. The vitamin is the most interesting and mysterious substance that has appeared on the medical scene, and the alert copy writers have not failed to dramatize the interest that it has awakened in both the medical profession and the public. Malted milks under various disguises are vaunted as tonics and as sleep producers. The medical profession, awake to the newer knowledge of physiology, is turning its interest increasingly to the promotion of health and to the use of properly selected foods for such purposes. Moreover, diet is recognized as of great importance in the control of diseases affecting the digestive tract and for the management of the degenerative diseases; diseases of the kidneys and of the circulation. As these trends in medical practice have developed, the need of somebody to express judgment of food products and food advertising, in the same way that the Council on Pharmacy and Chemistry considers medical preparations, has become apparent. The Council has therefore created a special committee on foods. The preliminary form of the rules under which this committee will function appears on page 1144 of this issue of *THE JOURNAL*. ? ? ?

The manufacturers of food products, distributors and all others interested in the promotion of natural food substances or of modified foods, for which claims are made in relation to the promotion of good health, will be asked to submit to the committee the products and the advertising material used in advancing their sale. If a product is of known composition, if the claims made for it are justified by the composition and by modern knowledge of diges-

tion and assimilation, if the advertising is up to the standards set by the Council on Pharmacy and Chemistry, advertisements of the product will be permitted in the publications of the American Medical Association, the product will be listed in the book on foods similar to New and Nonofficial Remedies, and the manufacturers will be permitted to use a symbol indicating that the product has been accepted by the committee for listing in the book of foods. If the product cannot reach the standards set forth, a report will be published as is done for drug products, and advertising of the preparations will not be permitted in the publications of the American Medical Association. Already several leading manufacturers have indicated their desire to cooperate with the committee; the great advertising agencies have welcomed the initiation of such a body; and there is reason to believe that the work of the committee will do much to sustain scientific standards in a field already mired in a morass of hokum and folly.

Through its public work, particularly in the last decade, the American Medical Association has gained the respect and admiration of vast numbers of the American people. That good will is an asset of no slight importance to public health. The work of the Committee on Foods should do much to carry still further the message of good hygiene and of scientific medicine. In beginning this new work, the Council on Pharmacy and Chemistry again asks the complete support of the medical profession. Only by such support can the work have the fullest success. Only by the sincere cooperation of the medical profession with the committee can it achieve the prestige necessary to complete attainment of its objects.—*Jour. A. M. A.*, October 12.

#### CONTROL OF BARBITAL ANESTHESIA AND POISONING BY DIURESIS

While using barbitalized dogs in some work on hyperglycemia, Carl A. Johnson, Arno B. Luckhardt and J. A. Lighthill, Chicago (*Journal A. M. A.*, Aug. 23, 1930), were struck by the apparent rapid recovery of these animals as compared with others not receiving large quantities of dextrose solution. This led to the use of diuretic measures in one clinical case of attempted suicide with barbital, and to the experimental work reported. A typical experiment consisted of a control experiment in which the recovery time was determined following the intravenous injection of 225 mg. of soluble barbital per kilogram. After an interval of from ten to twenty-four days the same dose of soluble barbital was given to the same dog and this was followed in one or two hours by 1 liter of 10 per cent dextrose solution given intravenously and the recovery time was noted. After another interval of from ten to twenty-four days a second control experiment similar to the first was performed in which soluble barbital was given without a subsequent intravenous injection of dextrose. Those dogs receiving 1 liter of 10 per cent dextrose solution following the barbital injection, the recovery time was reduced, in most dogs, to less than one-half. Gower and Tatum suggested that, on the basis of the excretion of barbital in the urine, the most rational means of treatment of acute barbital poisoning is to maintain optimum renal function. The authors feel that their experimental work supplies proof for the usefulness of this method of treatment in cases of poisoning with barbital and other barbituric acid compounds.



# THE JOURNAL

OF THE

## Missouri State Medical Association

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*Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent.*

APRIL, 1931

## EDITORIALS

### STATUS OF BILLS IN THE LEGISLATURE

There has been little change in the status of the bills introduced in the legislature at our request to amend the Workmen's Compensation Law. Members will recall that these bills, S.B. 222 and H.B. 403, increase the sum of money from \$250 to \$750, and the number of days during which this sum may be expended following an injury from sixty days to ninety days.

The bills have been on the calendar for third reading and final passage in both houses for several weeks. The passage of one of them may be accomplished before this issue of THE JOURNAL reaches the members. There is no definite objection to the passage of the bills, but two amendments have been proposed neither one of them working any disadvantage to the physician. They have not been introduced and will not be offered because the sponsors of the amendments have realized that such a step would practically defeat the passage of the bills on account of the short period remaining during which the legislature will be in session. If these bills pass, the amendments can be studied and if acceptable offered during the 1933 session.

As mentioned in our comment in the March issue, all bills that were objectionable to our organization have either been killed or have been otherwise disposed of so that their passage at this session is not probable.

Since the above was written the House has passed H.B. 403.

### THE WIDOW'S FUND

On another page in this issue\* will be found a communication from Dr. Frank I. Ridge, Kansas City, chairman of the Insurance and Memory Funds, giving the rules governing the operation of the Widow's Fund and appealing for applications for membership in the organi-

zation. An application blank is printed on a page in the advertising form.† Dr. Ridge emphasizes the point that it will be necessary to obtain one thousand members in the Widow's Fund organization before the proposition can be established on a sound basis. He also urges those who intend to join this Fund to send their application immediately together with a check or money order for \$2.20 before May 1. Make checks and money orders payable to "The Widow's Fund," not to any individual.

Members are reminded of Rule 2 adopted at the Hannibal session, that any member of the State Medical Association who is in good standing is eligible to membership in the Widow's Fund for the first year following its organization and that thereafter the age limit shall be 55 years.

### FIFTY-EIGHT DAY EUROPEAN TOUR \$895

An unusual opportunity is open to the members of the Missouri State Medical Association to make a fifty-eight day trip to Europe this summer in company with the members of other state medical associations at the very low price of \$895. This service gives the members first-class accommodations on the S. S. "Montclare" of the Canadian Pacific Lines, railroad transportation in Europe and class A hotels. This unusual opportunity is made possible by the cooperation of the journals of the several state medical associations working with the Travel Guild, a tourist agency of large experience and integrity. The character of the clinics will be organized for the benefit of all members, based upon the variety of topics the members themselves specify when registering for the tour. Instead of mass clinics designed for all to attend, local arrangements will be made to put the doctors in contact with the clinics that particularly interest them. The Travel Guild will then make arrangements in advance for the special benefit of each member of the tour. Travel options are available to members who may desire to tour by private automobile or airplane instead of rail transportation. Special arrangements are being made by the Travel Guild to include a maximum of points of interest in sight-seeing trips.

The tour is scheduled to begin June 12 on the S. S. "Montclare" sailing from Montreal at 10:00 a. m. All members who have registered for the trip can leave Philadelphia on the evening of June 11 and arrive in Montreal at 7:20 the next morning in ample time to board the steamship.

Two announcements in the advertising pages in this issue\* give all the information needed

\* See advertising page VIII.

† See advertising page XII and colored insert opposite advertising page XXVIII.

\* See page 188.

for estimating the desirability of registering and the details of the tour. Only members of the state medical associations with their wives and families will be registered for this tour.

We are sure that those who are planning to make a European tour this summer will find it greatly to their advantage to read these advertisements and send the application for registering and further information to the Travel Guild, or to the Secretary-Editor of our Association.

THE JOPLIN SESSION

The arrangements for the Joplin session, May 11 to 14, have progressed under the splendid activities of the Local Committee on Arrangements to such completeness that the various activities have been so planned even at this early date as to assure an enjoyable visit to every member. As announced in our March issue, the Jasper County members will provide an entertainment for Monday night, an open meeting on Tuesday night to hear the addresses of our President and our guests, and a buffet luncheon and vaudeville on Wednesday night.

There will be sight-seeing trips during the daytime when the Association is not in session to give members a view of the scenic grandeurs of Southwest Missouri.

The Connor Hotel will be general headquarters and all meetings will be held on the roof of the hotel. The scientific sessions will begin at 8:30 in the mornings. The House of Delegates will meet at 9:30 on Monday morning, May 11, and continue in session throughout the day except during the interval when the Council meets. The Council will convene immediately after luncheon and report to the House at 3 o'clock that afternoon. Tuesday, Wednesday and Thursday will be devoted to the scientific program except for the latter part of the afternoon of Wednesday when the House of Delegates convenes for the election of officers. The final program will be published in the May issue of THE JOURNAL.

In anticipation of a large number of members going to Joplin in motor cars, the Local Committee on Auto Transportation has made arrangements with several garages to make a uniform charge for parking machines. Attendants will be provided by the Auto Club at the Connor Hotel or the garages to take the cars to the garage and bring them to the hotel at the pleasure of our members. The names of the garages follow:

GARAGE AND ADDRESS	RATE PER NIGHT
Elk Garage, 5th and Pearl Sts.	50 cents
Motor Port Garage, 2nd and Wall Sts.	50 cents
Norton Motor Co., 520 Wall St.	50 cents

The personnel of the Committee on Arrangements follows:

GENERAL COMMITTEE ON ARRANGEMENTS

Dr. R. M. James, Joplin, Chairman; Dr. W. M. West, Monett; Dr. Guy Titsworth, Sedalia.

LOCAL COMMITTEE ON ARRANGEMENTS

Dr. O. T. Blanke, Joplin, Chairman; Drs. Ed. James and B. E. DeTar, of Joplin.

Committee on Entertainment: Dr. J. Albert Chenoweth, Joplin, Chairman; Drs. L. B. Clinton, M. O. Coombs, W. H. Mallory and A. B. Clark.

Committee on Reception: Dr. Leroy W. Baxter, Joplin, Chairman; Drs. H. A. LaForce, H. A. Leaming, W. B. Post and R. M. Stormont.

Committee on Hotels: Dr. H. L. Wilbur, Joplin, Chairman; Drs. V. E. Kenney, J. L. Sims and C. G. Martin.

Committee on Golf: Dr. A. M. Gregg, Joplin, Chairman; Drs. E. R. Hornback and M. O. Coombs.

Committee on Registration: Dr. A. Benson Clark, Joplin, Chairman; Drs. E. J. Burch and J. E. Douglass.

Committee on Auto Transportation: Dr. H. D. McGaughey, Joplin, Chairman; Drs. A. M. Gregg, B. E. DeTar, D. R. Hill and K. B. Huffman.

Committee on Exhibits: Dr. Paul W. Walker, Joplin, Chairman; Drs. Roy Myers and S. A. Grantham.

Committee on Publicity: Dr. J. W. Barson, Joplin, Chairman; Drs. C. M. Balsley and G. I. Meredith.

HOTELS AND RATES AT JOPLIN

Reservations for hotel accommodations at Joplin should be made in advance of the meeting. Members are urged to communicate with the hotels direct and mention what accommodations they would like to have reserved for them. It is important to mention the price of room desired and to state the probable date of arrival. Should it happen that the hotel is unable to make the reservation desired, members should then write the chairman of the Committee on Hotels, Dr. H. L. Wilbur, 830 Frisco Building, Joplin. The names of the hotels and rates follow:

HOTEL CONNOR (400 rooms)

	One Person	Each Additional Person
Room with toilet and lavatory, double bed .....	\$2.00	\$1.50
Room with bath, one double bed....	2.50	1.50
Room with bath, two double beds...	3.50	2.00
Room with bath, twin beds.....	3.00	2.00
Room with combination tub and shower, one double bed.....	3.50	2.00
Room with combination tub and shower, twin beds.....	4.00	2.00
Room with bath, one double bed....	4.00	2.00
Room with bath, one double bed....	4.50	2.00
Two-room suites, parlor and bedroom	6.00 up	2.00

HOTEL YATES (50 rooms)

Single room, without bath.....	\$1.25
Single room, with bath.....	1.75
Double room, without bath.....	2.00
Double room, with bath.....	3.00

AMERICAN HOTEL (50 rooms)

Single room, without bath.....	\$1.00 to \$1.50
Single room, with bath.....	2.00
Double room, without bath.....	1.50 to \$2.00



## KEYSTONE HOTEL (50 rooms)

Single room, without bath.....	\$1.50
Single room, with bath.....	2.00
Double room, without bath.....	2.00
Double room, with bath.....	3.00

PHILADELPHIA SESSION OF THE  
AMERICAN MEDICAL ASSOCIATION

The American Medical Association will meet in Philadelphia, June 8 to 12. We sincerely hope that our usual quota of members who attend these meetings will at least maintain the average of 120 that has registered in the past few years or even surpass that number. The interval of 25 days from the closing date of our Joplin session and the beginning of the American Medical Association session should give members ample time to arrange for their absence from home to attend both meetings.

An attractive feature of going to Philadelphia will be a special train from St. Louis over the Baltimore and Ohio Railroad, leaving St. Louis at 12:00 noon Saturday, June 6, arriving in Philadelphia at noon on Sunday, June 7. The members of the organizations in Texas, Oklahoma, Arkansas, and other states in this territory, have been invited to join this special train. It will be fully equipped to duplicate the equipment of the National Limited. The train runs through Washington, D. C., where a stop-over is allowed for those who wish to visit the Capitol. The schedule of the special train is arranged to provide a daylight ride through the scenic and historic Allegheny and Blue Ridge Mountains, passing through Harper's Ferry in the daytime.

When purchasing tickets members are reminded that they must ask the ticket agent to give them a certificate showing that they purchased the going ticket. This will entitle the holder to a return fare of one-half the regular fare. You cannot obtain this reduced rate unless you have the certificate. Families of members are entitled to this reduction on the same basis as for members.

The round trip railroad fare from St. Louis to Philadelphia on the basis of one and one-half rate for the return trip is \$52.23. The Pullman fare each way is, upper berth, \$8.10; lower berth, \$10.13; compartment, \$28.50; drawing room, \$36.00.

Members desiring to join this special train may reserve accommodations by addressing George F. Scheer, Assistant General Passenger Agent, 418 Locust Street, St. Louis, or the Secretary-Editor of our Association.

PROPOSED AMENDMENTS TO THE  
CONSTITUTION AND BY-LAWS

At the Hannibal session in 1930 several amendments to the Constitution and By-Laws

were proposed which had to be carried over for one year in accordance with the provisions of our Constitution and By-Laws. The amendments follow:

Amend Article IX, Section 1, of the Constitution, by adding after the word "President-Elect" in the second line, the words "three Vice Presidents," so that the Section shall read:

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors, more or less, as shall be determined by the House of Delegates from time to time.

By having vice presidents we create offices which can be filled by worthy members entitled to recognition and at the same time preserve the integrity of the succession of the president-elect to the presidency. In the absence of vice presidents the president-elect would succeed to the presidency, should that office become vacant between meetings, and thus leave the office of president-elect vacant.

Amend Chapter V, of the By-Laws, by adding a new section, to be known as Section 2a, as follows:

Section 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the president, the Council shall select one of the vice presidents to succeed him during the unexpired term.

This amendment provides for the duties of the vice presidents and for a successor to the presidency should that office become vacant between sessions.

## NEWS NOTES

The March issue of *The Radiological Review* is the fourth annual radium number of the publication. All articles were written exclusively for this issue and present a resumé of the present status of radium therapy.

A trap-shooting tournament has been offered as a feature of the entertainments at the Joplin session, May 11 to 14. Dr. J. W. Barson, 202 Sergeant Avenue, Joplin, is in charge of the plan and asks that members wishing to enter the tournament write to him.

Dr. W. T. Coughlin, St. Louis, gave an address before the Council on Medical Education in Chicago, February 17, entitled "Deficiencies in the Teaching of Surgery." On February 18, he was the guest of the St. Louis University School of Medicine alumni in Peoria, Ill., where he delivered an illustrated lecture on "The Surgery of the Sympathetic Nervous System."

The sixtieth annual meeting of the American Public Health Association will be held in Montreal, Quebec, September 14 to 17, 1931.

The regular monthly hospital clinic of the Kansas City Southwest Clinical Society will be held at the Children's Mercy Hospital, Kansas City, Tuesday, April 14. The morning will be devoted to clinics conducted by the guest of the society, Dr. Park J. White, of St. Louis, and members of the staff. In the evening Dr. White will be the guest of the Jackson County Medical Society and deliver an address on "Colic in Infancy."

For a few weeks, back numbers of Mental Hygiene beginning with Volume 1, 1917, are being offered to libraries, medical schools, hospitals, clinics and eleemosynary and educational institutions. A charge for packing and shipping will be made. Requests should be made to H. Edmund Bullis, The National Committee for Mental Hygiene, 370 Seventh Avenue, New York City.

The Pan American Medical Association will hold its third annual congress in Mexico City, July 26 to 31, 1931, under the auspices of the Government of the Republic of Mexico. The conference is held for the purpose of maintaining and promoting a greater understanding among the medical men of the New World. Information concerning the congress may be obtained by addressing Dr. Conrad Berens, Pan American Medical Association, 35 East 70th Street, New York City.

Forty insane patients were removed from the St. Louis City Sanitarium to State Hospital No. 3, at Nevada, February 17, on account of overcrowding at the sanitarium. This makes a total of 250 patients recently transferred from the St. Louis institution to state hospitals. The patients are residents of St. Louis but have no relatives who would be inconvenienced in visiting them in Nevada. St. Louis pays the state \$18 a month for the care of each patient.

Complete physiotherapy equipment has been installed in the Missouri Baptist Hospital, St. Louis, the gift of Dr. Andrew B. Nichols, retired St. Louis physician. More than \$5,000 worth of new apparatus has been installed in the department which occupies a third of the space on the fourth floor of the new wing of the building. Thus equipped, the physiotherapy facilities of the hospital are surpassed in St. Louis only by the Government hospitals.

Responding to invitations from a number of cities on the Pacific Coast, Dr. Evarts A. Graham, St. Louis, professor of surgery, Washington University School of Medicine, delivered several lectures during the month of March on surgery of the gallbladder and of the lungs. He addressed the Los Angeles Clinical and Pathological Society, the San Diego Academy of Medicine, the California Academy of Sciences, San Francisco, the King County Medical Society of Seattle, Oregon. He also gave the Joyce Lecture of the Portland (Oregon) Academy of Medicine.

Dr. John R. Caulk, St. Louis, delivered the B. A. Thomas Urological Lecture of the Philadelphia Urological Society at Philadelphia on February 23. The subject of his address was "Instrumental Treatment of Prostatism." Dr. C. W. Collings, New York City, opened the discussion on the address and was followed by Drs. Alexander Randall, Albert Bothe and Leon Herman, of Philadelphia. The B. A. Thomas Urological Lecture was established by the late Dr. B. A. Thomas, of Philadelphia, who devised a sum of money to the Philadelphia Urological Society the income from which was to be expended in providing for an annual address on some important urological subject. In selecting Dr. Caulk to deliver the lecture the Philadelphia Urological Society conferred upon him the distinction of delivering the first of these lectures.

An unusual gathering and celebration, a variation in class reunions, took place in St. Louis, March 3. This was the banquet meeting of the living members of the class graduated by the St. Louis Medical College in 1881. The occasion was unique in that it was the fiftieth anniversary of the graduation and each physician had been in practice for fifty years. Of the forty-one who were graduated seven are living and six of them were present at the banquet. The absent member was Dr. Henry Harnisch of Flagstaff, Arizona. The members attending were Drs. James A. Dickson, Willis Hall, Harvey G. Mudd, Amand Ravold, Max C. Starkloff, of St. Louis, and William A. James, Chester, Illinois. When the rule that graduates of medical colleges must have taken a three-year course became compulsory the St. Louis Medical College was the only school west of the Alleghenies having the three-year rule and only three eastern schools had similar requirements. The college was established in 1842 as the medical department of St. Louis University but severed this connection in 1855 and in 1891 became the Washington University School of Medicine.



The Missouri-Kansas Neuro-Psychiatric Association held a dinner meeting at State Hospital No. 2, St. Joseph, March 8. Following the dinner and an entertainment given by the patients under the direction of the superintendent, Dr. G. A. Johns, a clinical program was presented by the staff of the hospital. Dr. G. W. Forman presented a case of pernicious anemia; Dr. C. O. Dewey read a paper on paresis; Dr. J. R. Bunch and Dr. B. E. Mills presented a study case in psychiatry for diagnosis and showed pathological specimens of blood. Others present were Drs. A. L. Skoog, E. F. DeVilbiss, L. G. Harrington, M. L. Bills, Kansas City; Dr. M. L. Perry, superintendent of the State Hospital in Topeka, Kan., and Dr. J. M. Dunsmore, St. Joseph.

Springfield was selected by the Department of Justice as the location for the new \$2,500,000 federal hospital for the criminal insane. The decision, announced February 18, ended a contest among thirty-five cities, a dozen of them in Missouri. The hospital will be located on a 500-acre tract of land given by the Springfield Chamber of Commerce and will be completed in about eighteen months. Springfield was selected largely because of the direct rail connection with the Atlanta and Leavenworth penitentiaries and also because it was thought that the altitude (1351 feet) would be a favorable factor in the treatment of tuberculous patients. The largest group of patients will be the psychopaths both those regarded as insane when incarcerated and those who become mentally deranged after their commitment. In addition to tuberculous prisoners those suffering from other diseases whose proper care requires hospitalization away from the prison atmosphere will be treated.

Eight hundred and forty-one Missouri children suffering from various deformities were treated by the State Crippled Children's Service of the University of Missouri during 1930. The report was made by Dr. G. Kenneth Coonse, Columbia, orthopedic surgeon in charge of the service. Since the work was established in 1927, 1343 children have been treated. Of this number 233 were treated at the University Hospital, Columbia, for a total of 18,277 hospital days. Twenty-nine state clinics have been held, twenty-two of them in 1930. Of the 841 treated this year, 135 were cared for at the University of Missouri hospitals. The work there consisted of 149 operations including 57 blood transfusions, 220 casts, 708 roentgen ray examinations, 67 dental treatments, and 27 sets of braces. The hos-

pitals provide accommodation for about 90 beds but on account of lack of funds the average daily population is about 15. The university has requested the sum of \$100,000 for this service for the next two years. The appropriations committee of the House of Representatives has recommended the appropriation of this sum for the work. The present cost of rehabilitation of each child averages \$155. There are now a hundred children on the waiting list.

The St. Louis Trudeau Club will hold its next regular monthly meeting, Thursday, April 2, at 8:15 p. m., in the St. Louis Medical Society Building. The scientific program follows: "Blood Sedimentation Test and Its Value in Tuberculosis and Other Diseases," by Dr. H. I. Spector and Dr. R. O. Nuether, St. Louis. Discussion will be opened by Dr. Gerhard Gruenfeld. Members of the Medical Association are invited to attend.

Dr. M. B. Clopton, St. Louis, professor of clinical surgery, Washington University School of Medicine, gave more than 200 art prints to Washington University recently when definite plans for an art center including a museum were announced. Dr. Clopton has been a collector of prints for many years. The prints range from sixteenth century woodcuts to contemporary etchings and some are valued as high as \$8,000. Among the artists represented in the collection are Rembrandt, Whistler, Zorn, Goya, and Maryon.

Kansas City ranked high in the report of the recent survey made by the White House Conference on Child Health and Protection. The purpose of the survey was to determine what preventive medical services were utilized by parents for the benefit of children under 6 years of age. One hundred forty-eight cities were studied. Kansas City ranked first of 36 cities having a population of 250,000 or more in protective dental care, 34 per cent of the children investigated having received this service, 69 per cent had received general health examinations, 30 per cent had been immunized against diphtheria and 24 per cent vaccinated for smallpox. St. Louis showed 9 per cent of the children under 6 had received dental service, 18 per cent vaccinated and 10 per cent protected against diphtheria. In St. Joseph, 53 per cent had received a general health examination, 25 per cent had received dental care, 7 per cent were vaccinated against smallpox and 6 per cent protected against diphtheria. Springfield showed 41 per cent had received a general

examination, 15 per cent were given dental care, 23 per cent protected against diphtheria and 14 per cent vaccinated.

The United States Civil Service Commission announces open competitive examination for senior medical technician and medical technician (bacteriology and roentgenology). Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than April 1. The examinations are to fill vacancies in the Veterans' Administration. Competitors will not be required to report for examination at any place but will be rated on their education and training and experience. Full information may be obtained from the Civil Service Commission at Washington, D. C., or the secretary of the Civil Service Board of Examiners at the post office or customhouse in any city.

The following articles have been accepted for New and Nonofficial Remedies:

Abbott Laboratories

Ampules Gold Sodium Thiosulphate—Abbott, 0.01 Gm.

Arlington Chemical Co.

Grass Mixture No. 1 Pollen Extract—Arlco (Timothy, June Grass, Orchard Grass, Red Top, in equal parts); Grass Mixture No. 2 Pollen Extract—Arlco (Timothy 40 per cent, Orchard Grass, Red Top, and Sweet Vernal Grass, each 15 per cent); Grass Mixture No. 3 Pollen Extract—Arlco (Bermuda Grass and Johnson Grass in equal parts); Ragweed Dwarf and Giant Mixture Pollen Extract—Arlco (equal parts of each); Birch Mixture Pollen Extract—Arlco (White Birch, Black Birch, Yellow Birch in equal parts); Maple Mixture Pollen Extract—Arlco (Red Maple, Ash-leaved Maple, Norway Maple, Sugar Maple in equal parts); Oak Mixture Pollen Extract—Arlco (White Oak, Red Oak, Black Oak, Swamp Oak in equal parts)

Fairchild Bros. & Foster

Liver Extract—Fairchild

Eli Lilly & Co.

Tablets Amytal,  $\frac{3}{4}$  grain

H. A. Metz Laboratories

Sulpharsphenamine—Metz, 0.75 Gm. Ampules

Sulpharsphenamine—Metz, 0.9 Gm. Ampules

Sulpharsphenamine—Metz, 3.0 Gm. Ampules

G. D. Searle & Co.

Procaine Borate—Searle, Ampules Procaine Borate and Epinephrin 1 c.c.

Health Products Corporation

Marine Liver Extract (White)

Schering Corporation

Iopax

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

Chas. Pfizer & Co.

Cinchophen—Pfizer

G. D. Searle & Co.

Ampules Sodium Thiosulphate (Searle) 5 c.c. +

Ampules Sodium Thiosulphate (Searle) 10 c.c. +

## OBITUARY

WALTER SCOTT RUTHERFORD, M.D.

Dr. Walter S. Rutherford, Sullivan, a graduate of Beaumont Hospital Medical College, St. Louis, 1896, died in December, 1930, aged 60.

Dr. Rutherford received his preliminary education in the public schools at Sullivan and Sullivan Academy. He practiced in Oak Hill, Missouri, from 1901 to 1911. Dr. Rutherford had gained many friends in Sullivan and in his previous location. He was a member of the Franklin County Medical Society and the State Medical Association.

JOHN C. LEBRECHT, M.D.

Dr. John C. Lebrecht, St. Louis, a graduate of Washington University School of Medicine, 1882, died of heart disease at his home, March 23, aged 71.

Dr. Lebrecht was born in St. Louis, and had been in active practice in St. Louis since he was graduated in medicine until last fall when ill health caused his retirement. He was always interested in political as well as professional activities. He specialized in gynecology. He was a member of the St. Louis Medical Society, the State Medical Association and was a Fellow of the American Medical Association. He is survived by two daughters.

CLAUDE L. SELLERS, M.D.

Dr. Claude L. Sellers, St. Louis, a graduate of St. Louis University School of Medicine, 1910, died March 21, aged 47.

Dr. Sellers was born in Prescott, Kansas, and received his preliminary education in the Fort Scott (Kansas) High School and the University of Kansas. He served overseas for eighteen months in France and England in 1918 and 1919. He specialized in orthopedic surgery. He was a member of the St. Louis Medical Society and the State Medical Association.



## EDWARD CHRISTIAN WITTWER, M.D.

Dr. Edward C. Wittwer, Mountain Grove, a graduate of the Kansas City Medical College, 1905, and St. Louis University School of Medicine, 1908, died at his home February 11 of heart disease, aged 57.

Dr. Wittwer was born in Sabetha, Kansas, and received his preliminary education there. He served in the medical division in the Spanish-American War and on the Mexican border in 1916 and was in active medical service in France during the World War.

Dr. Wittwer had practiced in Mountain Grove for eighteen years. He was interested in civic as well as professional activities. He was a member of the Wright-Douglas County Medical Society, serving as vice president in 1924 and president in 1925, and as alternate delegate to the State Association Medical meetings in 1923, 1928, 1929, and 1930. He was president of the Southwest Missouri Medical Society in 1920. He was a member of the State Medical Association and a Fellow of the American Medical Association.

He is survived by his widow, Mrs. Ida Wittwer, two children, his mother, a brother and a sister.

The Wright-Douglas County Medical Society adopted the following tribute to Dr. Wittwer:

"We hereby express our sincere sympathy to the family of our beloved colleague, Dr. E. C. Wittwer, Mountain Grove, in their bereavement.

"We feel that in his death they have lost a loving and beloved son, husband and father, that we have lost an able and worthy fellow physician, and that the community has lost a respected and much needed citizen."

OUR EIGHTEENTH CENTURY METHOD OF  
TREATING SUPPURATIVE OTITIS MEDIA

John A. Pratt, Minneapolis (Journal A. M. A., Oct. 25, 1930), says that in the past and present methods of treating suppurative otitis media, the most important factor, drainage, seems to have been ignored. He asserts that the powerful suction of capillary attraction is well known. It is the use of this well known force that is employed in the dry treatment of suppurative otitis media. With a well made, elongated swab of highly absorbent cotton, all fluids in continuity can be drained. In following this fact, Pratt has been using continuous drainage of the middle ear for the past twenty-five years, with remarkable success. However, he has found only two using the method of continuous drainage in suppurative otitis media, one of these being a former student of his at the University of Minnesota. He describes his method of treatment in detail.

## SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL  
FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

## HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

MISSOURI STATE MEDICAL ASSOCIATION  
74TH ANNUAL SESSION

Joplin, May 11, 12, 13, 14, 1931

## PRELIMINARY PROGRAM

## Guests

Fishbein, Morris, Chicago, Ill., Editor, Journal American Medical Association: Twenty-Five Years of Medical Progress.

Sloan, Edward P., Bloomington, Ill., Former President, Illinois State Medical Society: Dysfunction of the Thyroid Gland; Lantern Slides.

## Symposia

Symposium on Traumatic Surgery:

Teachenor, F. R., Kansas City: Diagnosis and Management of Trauma of the Brain.

Zeinert, O. B., St. Louis: Diagnosis and Management of Injuries to the Chest.

Hyland, Robert F., St. Louis: Diagnosis and Management of Injuries to the Abdomen.

Leighton, W. E., St. Louis: Diagnosis and Management of Injuries to the Spinal Cord.

Symposium on Heart Disease:

Bohan, P. T., Kansas City: The Clinical Picture of Heart Disease.

Grant, S. B., St. Louis: Mechanical Aids in the Diagnosis of Heart Disease.

Strauss, A. E., St. Louis: The Treatment of Heart Disease.

Holbrook, Ralph W., Kansas City: The Prognosis of Heart Disease.

Symposium on Appendicitis:

Lowe, H. A., Springfield: Causes of the High Mortality in Appendicitis.

Baumgarten, Walter, St. Louis: Definite Appendiceal Symptomatology.

Helwig, F. C., Kansas City: As a Pathologist Views the Appendix.

Hertzler, A. E., Kansas City: The So-Called Chronic Appendicitis.

Stowers, J. E., Kansas City: How to Treat Appendicitis in Its Two Phases—Before and After Perforation.

Miller, E. Lee, Kansas City: When Not to Operate on a Case of Acute Appendicitis.

Conley, D. S., Columbia: Postoperative Complications of Appendicitis.

### Scientific Papers

Baskett, Edgar D., Columbia: Hypothyroidism in Young Women.

Beatie, W. R., Springfield: Pruritus Ani.

Bell, H. H., St. Louis: Search for Tuberculosis in School Children: Importance to the Child, to the Parent and to the Community.

Child, Scott P., Mt. Vernon: Tuberculosis in Children: Its Diagnosis and Prognosis.

Dorsett, E. Lee, St. Louis: Breech Presentation: Lantern Slides.

Ferris, Carl R.; Elliott, B. Landis, and Stookey, Paul F.; Kansas City: Early Diagnosis and Treatment of Acute Anterior Poliomyelitis.

Gay, Lee Pettit, St. Louis: Abdominal Surgery.

Gilliland, C. E., St. Louis: The Irritable Colon.

Gilliland, O. S., Kansas City: Sinusitis in Children.

Grantham, S. A., Joplin: Spinal Fusion by the Tunneling Method; Motion Pictures.

Greene, Charles W., Columbia: The Control of the Coronary Arterial Blood Supply in Relation to Angina Pectoris.

Heller, E. P., Kansas City: Recent Additions to the Armamentarium for Fracture Reduction and Retention.

Henske, Andrew C., and Ehlers, Charles W., St. Louis: Selective Pneumothorax. A Review of the Literature and a Report Based upon the Study of Eighty-Nine Cases; Lantern Slides.

Hunt, Claude J., Kansas City: Carcinoma of the Colon; Report of Occurrence in a Young Adult.

Jennett, James Harvey, Kansas City: Persistent Hereditary Edema of the Legs (Milroy's Disease).

Kettelkamp, George D., St. Louis: Determination of Activity in Tuberculosis.

Kinard, Kerwin W., Kansas City: Treatment of Thyroid Diseases With Iodine.

Klemme, Roland M., St. Louis: Cervical Cord Tumors; Report of a Cord Tumor Extending from Second Cervical Spine Segment Through the Foramen Magnum and into the Posterior Fossa; Recovery.

Lingenfelder, Julius, Hermann: The General Practitioner, Guardian of Public Health.

Love, Joseph W., Springfield: Massive, Spontaneous Hemorrhage into the Vitreous Humor and Iritis, Both Eyes, Accompanying the Schönlein-Henoch Syndrome; Report of a Case.

McCandless, O. H., Kansas City: Epithelioma.

Mercer, C. Wilbur, Kansas City: Tuberculosis of Joints; Conservative Plan of Treatment. Presentation of Patients.

Mudd, James L., St. Charles: Surgery of Pulmonary Tuberculosis.

Pendleton, George F., Kansas City: The Bandl Ring.

Robnett, Dudley A., Columbia: Hernia of the Bladder.

Schnobelen, P. C., St. Louis: Improved Method of Making Early Diagnosis of Defects in the Colon; Lantern Slides.

Smith, Clinton K., Kansas City: Suprapubic Prostatectomy Under Vision with Reconstruction of the Bladder Neck.

Smith, C. Souter, Springfield: Basal Metabolism in Middle Ear Catarrh.

Stewart, J. Edgar, St. Louis: Treatment of Fractures of the Upper End of the Femur.

Werner, August A., St. Louis: The Hypovarian Syndrome.

Wilhelmi, Otto J., St. Louis: Nonvenereal Prostatitis.

### CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The January meeting of the Cape Girardeau County Medical Society was held in the Chamber of Commerce rooms, Cape Girardeau, January 12, at 8:15 p. m., the president, Dr. J. H. Cochran, Cape Girardeau, presiding. The following members were present: Dr. G. W. Vinyard, Jackson; Drs. N. F. Chostner, J. H. Cochran, H. L. Cunningham, E. A. Dalton, A. L. Fuerth, A. M. Murphy, O. L. Seabaugh, M. H. Shelby, W. H. Wescoat, E. H. G. Wilson and C. A. W. Zimmermann, of Cape Girardeau.

Dr. N. F. Chostner, Cape Girardeau, was elected secretary to fill the vacancy due to the removal of Dr. E. C. Rolwing to Charleston, Mo.

Dr. E. H. G. Wilson, Cape Girardeau, moved that the secretary be authorized to purchase a warrant book and that no bills be paid except by presentation of warrant properly executed. The motion was seconded by Dr. W. H. Wescoat and carried.

The president, Dr. J. H. Cochran, Cape Girardeau, appointed the following members to serve on the legislative committee for 1931: Drs. D. H. Hope, Cape Girardeau; D. I. L. Seabaugh and G. W. Vinyard, of Jackson.

Dr. E. H. G. Wilson, Cape Girardeau, moved that the legislative committee act in emergencies without the advice of the Society. Motion seconded by Dr. O. L. Seabaugh and carried.

Drs. J. H. Cochran, M. H. Shelby, N. F. Chostner and O. L. Seabaugh, of Cape Girardeau, were appointed by the president as a committee to cooperate with Mrs. Gramling in her welfare work.

Dr. W. H. Wescoat, Cape Girardeau, was elected to serve as censor for three years.

Dr. H. L. Cunningham, Cape Girardeau, read a very interesting paper on "Ocular Manifestations of Brain Tumor" and read the report of a case.

Dr. C. A. W. Zimmermann, Cape Girardeau, read a well prepared paper on "Agranulocytic Angina," followed by a highly commendable case report.

Both papers were well received and discussed by all present.

N. F. CHOSTNER, M.D., Secretary.

### CHARITON COUNTY MEDICAL SOCIETY

The Chariton County Medical Society and its guests met Thursday evening, February 26, 1931, at Salisbury, to honor four members of the Society who are more than seventy years of age. Two of these members have the distinction of having practiced medicine for fifty years.

Dr. W. B. Lucas, Mendon, Missouri, aged seventy-four, graduated from Washington University School of Medicine in 1879 and has practiced fifty-one years; Dr. J. D. McAdam, Prairie Hill, aged seventy-three, graduated from Missouri Medical College in 1881 and has practiced fifty years; Dr. C. D. Stratton, Rothville, graduated from Missouri Medical College in 1883 and has practiced forty-eight years; Dr. A. W. Zillman, Keytesville, graduated from Rush Medical College in 1886 and has practiced forty-four years. All these men are in active practice at present.

It is a very rare occasion when a medical society has a member who has practiced fifty years, and the members of the Chariton County Medical Society are especially proud of the fact that they have four members who are past seventy years of age, two of whom have practiced at least a half century. The manifestation of this pride in these four members



and their achievements was the keynote of the meeting.

The meeting was called to order in the dining room of the Morehead Hotel, where a turkey dinner was served, the four guests of honor being seated at the head of the table. After the meeting, Dr. E. Lee Miller, Kansas City, a guest of the Society, expressed the thought and sentiment of every one in a splendid address eulogizing the four honor guests and congratulating the Society upon having the high privilege of honoring these four members who are still active in our meetings and who are an inspiration to all the members.

Dr. J. R. McVay, Kansas City, read a paper on "Cancer of the Rectum," pausing a moment at the beginning of his paper to pay his tribute to the honor guests.

Dr. Frank Tainter, St. Charles, read a paper on "Diagnosis of the Acute Abdomen," paying tribute during the course of his paper to the honor guests.

Dr. A. A. Werner, St. Louis, read a paper on "Hypovarism," which was very well received. He also spoke of the inspiration the lives of these pioneers of medicine should be to the members.

At the close of the scientific program the four honor guests were each presented with an autograph album, each page of which held the autograph of a member or guest with a sentiment appropriate to the occasion written with the autograph. The honor guests replied to the speech of presentation with very interesting talks, mostly autobiographical and reminiscent in nature.

Our Society is justly proud of these four men. For practically one half century they have represented education, culture and achievement in their community; they have fought ignorance, superstition and prejudice; they have ministered to the unfortunate; they have relieved the suffering; they have banished terror and fear, and they have sympathized with the bereaved. They have labored long, never sparing themselves, and they have had the high privilege of living to see their labor count. They have added up the years and found them good. They are loved, honored and revered by those whom they have served, and they have the highest respect of members of their own profession. May their remaining years be many and if they have only a modicum of the relief, joy, happiness and health they have given others it will more than suffice for their every need.

Other guests were Drs. F. J. Tainter, St. Charles; August A. Werner, St. Louis; E. Lee Miller and J. R. McVay, Kansas City; Ola Putman, Marceline; R. D. Streeter, T. S. Fleming, and F. L. Harms, of Moberly. Members present: Drs. R. P. Price, Triplett, president; H. E. Tatum and C. W. Bowen, of Brunswick; O. H. Damron, Keytesville; W. D. West, Mendon; G. W. Hawkins, D. E. Miller, William W. and Ralph M. Fellows, of Salisbury.

RALPH M. FELLOWS, M.D., Secretary.

### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society began its 77th year with a meeting at the Snapp Hotel in Excelsior Springs, February 26, at 6:00 p. m. A famous Snapp Hotel dinner set the 1931 ball rolling. The following were present: Dr. W. C. Hamilton, Kearney, president; Dr. and Mrs. J. J. Gaines, Dr. and Mrs. Y. D. Craven, Dr. and Mrs. Joseph Dankrys, Dr. and Mrs. C. H. Suddarth, Dr. and Mrs. H. J. Clark, Dr. and Mrs. O. S. Wilfley, Dr. and Mrs. John D. Brooks,

Dr. and Mrs. Garrett V. Johnson, Dr. and Mrs. W. J. James, Dr. and Mrs. F. Shoemaker, Dr. and Mrs. S. D. Henry, Mrs. Harriet Lindsay, superintendent of the Excelsior Springs Sanitarium, Dr. H. D. Luse, medical officer in charge of U. S. Veterans' Hospital No. 99, Dr. E. C. Robichaux, Dr. D. A. Morgan, Dr. A. N. J. Dolan, Dr. J. A. Howell, and Dr. J. Edward Baird, of Excelsior Springs; Dr. and Mrs. J. H. Rothwell and Dr. and Mrs. W. H. Goodson, of Liberty; Dr. J. Park Neal, Kansas City.

The scientific session was devoted to a study of "Diaphragmatic Hernia." Dr. C. H. Suddarth, Excelsior Springs, read a short paper emphasizing the dearth of literature on this important subject. "A rare disease, because so frequently overlooked owing to the chain of entirely misleading symptoms which announce the onset. Many cases are diagnosed and treated as gastric ulcer, infected gallbladder, locked bowel, etc.," Dr. Suddarth said. He exhibited roentgen ray pictures made by himself of two recent cases in his experience. One was a well established hernia with the patient attending to his affairs but complaining of ordinary indigestion and afraid he is suffering from tuberculosis. The other, a case recently operated on, wherein a loop of the colon lay in the lower pleural cavity.

Dr. J. Edward Baird, Excelsior Springs, read the clinical symptoms and medical treatment of this case up to the date of operation.

Dr. J. Park Neal, Kansas City, and Dr. J. E. Musgrave, Excelsior Springs, surgeons in the case, detailed the operation. Dr. Neal exhibited a postmortem specimen of the incarcerated bowel pushed far through the diaphragm. He also showed skiagrams of a former case, an infantile occurrence from which he preserved a postmortem specimen. He believes most cases of this unfortunate lesion are congenital. "Most operative measures are attempted far too late to be successful." Dr. Musgrave supplemented the report of Dr. Neal in a short, direct statement.

Every one present took part in the interesting discussion.

Dr. J. D. Brooks, Excelsior Springs, reported cases of hernia following stab and gunshot wounds of the diaphragm.

Dr. S. D. Henry, Excelsior Springs, president of the Excelsior Springs branch, announced a movement to organize a district hospital. This subject will be discussed at the next meeting.

Those absent missed something.

J. J. GAINES, M.D., Secretary.

### COOPER COUNTY MEDICAL SOCIETY

The Cooper County Medical Society met at the St. Joseph's Hospital, Boonville, January 29, 1931.

The application of Dr. Walter M. Whitaker, Boonville, was read and approved by the board of censors and he was elected a member.

Dr. Gilbert L. Chamberlain, New Franklin, was elected to membership by transfer from the Howard County Medical Society.

The following officers were elected to serve during 1931: President, Dr. G. A. Russell, Boonville; vice president, Dr. A. L. Meredith, Prairie Home; secretary-treasurer, Dr. T. C. Beckett, Boonville; delegate, Dr. G. L. Chamberlain, New Franklin; alternate, Dr. Charles Sandy, Pilot Grove.

T. C. BECKETT, M.D., Secretary.

## HOWELL-OREGON-TEXAS COUNTY MEDICAL SOCIETY

At a meeting of the Howell-Oregon-Texas County Medical Society held in the American Legion Hall at West Plains, January 22, the following members were present: Drs. J. F. Gullic, Koshkonong; J. C. B. Davis, Willow Springs; P. D. Gum, A. H. Thornburgh and Lee E. Toney, of West Plains; C. F. Greene and W. S. Baldwin, of Bakersfield; H. A. Thompson, Lanton. Visitor, Dr. Seville.

On motion, seconded and carried, West Plains was selected as the regular meeting place for 1931 as it is centrally located and easily accessible. The day of the meeting was set for the last Thursday of each month and the time 2:00 p. m.

A discussion of scientific progress consisting of case reports, with comment by various members, proved interesting and instructive.

Dr. P. D. Gum, West Plains, reported an interesting case of detached placenta in a twenty year old primipara which, from the history of the case and progress of labor and condition of fetus when delivered, indicated the placenta had been detached for at least three weeks. The baby was dead and labor was very slow and tedious, and the placenta and baby together with a large amount of old black blood clot was expelled after a forceps delivery. The patient made an uneventful recovery.

Dr. Lee E. Toney, West Plains, reported a case of focal infection following an attack of influenza in a young man aged sixteen in which the symptoms indicated brain tumor. After clearing up an ethmoid sinus infection the patient recovered promptly.

Dr. W. S. Baldwin, Bakersfield, reported a case of amebic abscess of the liver with symptoms of acute pulmonary tuberculosis which cleared up promptly after draining the abscess.

Dr. H. A. Thompson, Lanton, called attention to the necessity of carefully reporting births and deaths to the registrar of the district where such births and deaths occur, thus keeping the records of the registrar and state board of health uniform.

The election of officers for 1931 was as follows: President, Dr. J. C. B. Davis, Willow Springs; vice president, Dr. J. R. Womack, Houston; secretary-treasurer, Dr. P. D. Gum, West Plains; delegate, Dr. P. D. Gum, West Plains; alternate, Dr. A. H. Thornburgh, West Plains.

A. H. THORNBURGH, M.D., Secretary.

## JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at Joplin, January 20, at 8:00 p. m., the president, Dr. L. C. Chenoweth, Joplin, presiding. There were fourteen members present. The minutes of the last meeting were read and approved.

The application for membership of Dr. Paul W. Walker, Joplin, which had been previously approved by the board of censors, was voted on by secret ballot and Dr. Walker was unanimously elected a member.

The application for membership of Dr. George H. Wood, Carthage, was read and referred to the board of censors.

The president brought up the matter of the State Association meeting at Joplin May 11-14, 1931, and after a general discussion it was decided that the officers of the Society, the councilors and delegates act as an executive board to work out the personnel of the local committees.

Dr. Chenoweth also suggested that the Society adopt the policy of having two or three public meetings during the year to which the laity shall be invited.

The secretary reported that a public meeting was planned for February 3 in connection with the program of the American Association for the Control of Cancer.

Dr. A. B. Clark, Joplin, presented a patient with persistent skin disease.

Dr. L. C. Chenoweth, Joplin, talked about a traumatic injury, the result of an accident, that he recently treated.

### Meeting of February 3, 1931

The Society held a public meeting on February 3 in conjunction with the American Association for the Control of Cancer cooperating with the Business and Professional Women's Club. Dr. Ellis Fischel, St. Louis, was the principal speaker.

The president, Dr. L. C. Chenoweth, Joplin, in his opening remarks, spoke on the changed attitude of the medical profession toward the public and to disease, emphasizing the preventive side of medicine.

Dr. Fischel gave an instructive talk on "What We Should Do About Cancer," illustrated with lantern slides. The importance to lay people of recognizing the early symptoms of cancer was particularly stressed.

About one hundred members and guests attended the meeting.

### Meeting of February 10, 1931

The meeting convened at 8:00 p. m. with the president, Dr. L. C. Chenoweth, Joplin, in the chair. Twenty-six members and three visitors were present. The Society had as its guests Dr. W. C. Gayler, St. Louis, President of the State Association, Dr. E. J. Goodwin, Secretary-Editor of the Association, and Dr. Emmett P. North, St. Louis. These speakers were furnished by the Postgraduate Committee of the State Association. The minutes of the February 3 meeting were read and approved.

The application of Dr. George H. Wood, Carthage, was reported favorable by the board of censors and Dr. Wood was unanimously elected to membership.

The secretary read a letter from Dr. W. L. Allee, Eldon, chairman of the Committee on Public Policy of the State Association, in regard to pending legislation relative to the Workmen's Compensation Act. A motion was made, seconded and carried, that the secretary notify our state representative and senator that the Society has endorsed this measure.

Dr. W. C. Gayler, St. Louis, spoke on "Complications of Pregnancy." He discussed one case of abdominal pregnancy with delivery of a month-old dead fetus by cesarean section. The second case was one of transverse position in the anterior-posterior direction, found at cesarean section to be due to a bicornate uterus with the head in one horn and the breech in the other. The third case was that of an elderly primipara in which there was a failure of engagement which on cesarean section proved to be due to numerous fibroids.

Dr. Emmett P. North, St. Louis, gave an interesting talk on "Emergency Eye Surgery."

Dr. E. J. Goodwin, St. Louis, gave an informal talk on the problems of the State Association and offered numerous suggestions for the management of the Annual Meeting.

### Meeting of February 17, 1931

The meeting was called to order by President Chenoweth with twenty-five members and three



visitors present. The minutes of the last meeting were read and approved.

Dr. J. A. Chenoweth, Joplin, chairman of the entertainment committee, reported on the progress of the arrangements for the Annual Meeting.

Dr. E. D. James, Joplin, reported a case of pregnancy with free uterine hemorrhage simulating miscarriage last summer but with normal delivery on February 14.

Dr. Powers, of Joplin, reported a case of pregnancy complicated by massive edema and other evidences of kidney damage and preeclampsia. The case was delivered without convulsions.

Dr. R. M. James, Joplin, also reported a case of eclampsia.

Dr. L. C. Chenoweth, Joplin, spoke on the value of removing quarantine in smallpox cases as possibly being a more effective method of controlling the disease than the present methods.

Dr. M. B. Harutun, Joplin, spoke about the activities of a practitioner of "naturopathy" in Joplin in advising against vaccination for smallpox.

Dr. A. B. Clark, Joplin, read a paper on "The Prevention and Care of Heart Disease," emphasizing the relationship of focal infection and overexertion in growing children. As recorder of vital statistics, he mentioned the reported causes of death in Galena township during 1930 and the interesting observation that out of a total of 580 deaths there were only three deaths from diphtheria and not one from smallpox, which further emphasizes the value of preventive medicine. Diseases of the heart and blood vascular system proved to be the most frequent causes of death. He concluded with a number of suggestions for better examination and control of school children in connection with school athletics and physical training.

A thorough discussion followed. The members expressed their appreciation of Dr. Clark's timely subject and of the example he set in providing the program from the personnel of the Society.

Mr. Howard Bardwell, safety director of the Empire District Electric Company, presented two reels of motion pictures provided by the American Association for the Control of Cancer. This picture had been shown to the employees of the Electric Company and was presented before the Society with the idea of showing the profession what type of information is imparted to the laity by the Cancer Society.

O. T. BLANKE, M.D., Secretary.

#### LAFAYETTE COUNTY MEDICAL SOCIETY

The December, 1930, meeting of the Lafayette County Medical Society held at Higginsville was a delightful affair. About forty persons partook of a turkey dinner at the Arcade Hotel.

Dr. W. A. Braecklein, Higginsville, read a paper containing advice and criticism on the present-day "country doctor."

The secretary, Dr. W. E. Koppenbrink, Higginsville, was presented with a beautiful Sheaffer fountain pen desk set as a Christmas gift from the Society. This gift was very much appreciated.

The following officers were elected for 1931: President, Dr. E. L. Johnston, Concordia; president-elect, Dr. Odus Liston, Oak Grove; secretary-treasurer, Dr. W. E. Koppenbrink, Higginsville; censor, Dr. W. A. Braecklein, Higginsville; delegate, Dr. E. L. Johnston, Concordia; alternate, Dr. Odus Liston, Oak Grove; reporter, Dr. J. De Voine Guyot, Higginsville.

W. E. KOPPENBRINK, M.D., Secretary.

#### Meeting of January 27, 1931

The Society and the Woman's Auxiliary held their meetings in the Junior high school at Lexington, January 27, with the Johnson County Medical Society as their guest. A turkey dinner was served by the Lexington members.

Dr. E. L. Johnston, Concordia, was installed as president and Dr. W. E. Koppenbrink, Higginsville, as secretary-treasurer.

Dr. J. De Voine Guyot, Higginsville, read a paper on "Some Problems in the Diagnosis and Treatment of the Aged." A thorough discussion followed.

Dr. E. L. Johnston, Concordia, reported a case of rupture of the rectum and bladder complicated by peritonitis, with recovery.

#### Meeting of February 24, 1931

The Society met at Odessa, February 24. The president, Dr. E. L. Johnston, Concordia, presided. Members present: Drs. C. T. Ryland, Lexington; W. E. Koppenbrink, W. A. Braecklein, W. C. Webb and J. De Voine Guyot, of Higginsville; J. W. Horner, Alma; E. L. Johnston, Concordia; R. C. Schooley and E. B. Nisbet, of Odessa; Odus Liston, Oak Grove. Guests: Drs. C. C. Conover, Kansas City, and J. A. Powers and L. J. Schofield, of Warrensburg.

Dr. R. C. Schooley, Odessa, presented a clinic on endocarditis and his cases were discussed by Dr. C. C. Conover, Kansas City.

Dr. Odus Liston, Oak Grove, read an interesting and instructive paper on "Endocarditis," which was thoroughly discussed by Dr. Conover.

The invitation from the Johnson County Medical Society inviting the Society to be its guest at a dinner in Warrensburg, March 18, was accepted. The wives of the members were also invited.

J. DE VOINE GUYOT, M.D., Reporter.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Nodaway County Medical Society was held January 2, in the lecture-room of the St. Francis Hospital, Maryville. The meeting was called to order by the newly elected president, Dr. Kearn C. Cummins, Maryville, at 7:45 p. m. The following members were present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person, Jack Rowlett, and Wm. Wallis, Jr., of Maryville; R. B. Bridgeman, Hopkins; W. M. Hindman, Burlington Junction; C. D. Humbert, Barnard. Drs. J. R. Elliott and Sam H. Snider, of Kansas City; Drs. Jesse Miller, W. B. Owen, and H. L. Stinson, dentists, of Maryville, and several Sisters from the hospital staff were present as invited guests of the Society.

The secretary read a letter from Mrs. Bert Cooper, secretary-treasurer of the Nodaway County Tuberculosis Association, dated January 6, 1931. The Society had, at a previous meeting, given its endorsement to the educational chest clinics which are being held by the Nodaway County Tuberculosis Association. Mrs. Cooper's letter requested our Society to appoint an advisory committee to cooperate with the Association on the efficiency of the clinics, particularly with regard to their arrangement, records and correspondence and the selection of examiners. The letter and the clinics were discussed by Dr. L. E. Dean, Maryville. Dr. C. V. Martin moved that the committee be appointed as requested. Dr. W. M. Wallis, Jr., seconded the motion, which carried. The president appointed the following

to this committee: Drs. C. V. Martin, C. P. Fryer, and C. D. Humberd.

Dr. Jesse Miller addressed the Society at the president's invitation. He stated that the dental department of the Missouri State Board of Health would in the near future choose three counties in Missouri for a survey of the condition of the teeth of school children. Dr. Miller had been in conference with the dental profession who seemed desirous of having Nodaway County chosen as one of the fields for this survey. Dr. C. T. Bell moved that the Society endorse the effort to secure this dental survey. Dr. W. M. Wallis, Jr., seconded the motion, which carried.

The meeting was then turned over to our Kansas City guests who had come as speakers for the evening through the courtesy of the Postgraduate Committee of the State Association.

Dr. J. R. Elliott presented an essay on "The Use of Local Anesthesia in Fractures and Dislocations."

Dr. Sam H. Snider read a paper on "Artificial Pneumothorax; the Other Lung."

These lectures were well received and actively discussed.

The meeting adjourned without form at 10:15 p. m.

#### Meeting of February 13, 1931

The Society met February 13 in the lecture-room of the St. Francis Hospital, Maryville, and was called to order by the president, Dr. K. C. Cummins, Maryville, at 7:45 p. m. The following members were present: Drs. C. T. Bell, J. A. Bloomer, K. C. Cummins, L. E. Dean, C. P. Fryer, C. V. Martin, R. C. Person, Jack Rowlett, and Wm. Wallis, Jr., of Maryville; W. M. Hindman, Burlington Junction; Chas. D. Humberd, Barnard; Chas. W. Kirk, Hopkins; C. J. Garding, Conception Junction. Drs. Ed Miller, of Hopkins, and Earl Braniger, Maryville, dentists, and several Sisters from the hospital staff were present as invited guests of the Society. The minutes of the meeting of January 9 were read and approved. The secretary made an especial plea for a harmonious meeting, since thirteen members only were present at a meeting on Friday, the thirteenth!

The evening was given over to a round-table discussion of medical economics, a revision of the local standard fee schedule, the present collection methods, and allied subjects. The secretary read the official fee schedule of the Society which was adopted in 1912 and is still in force. This reading provoked numerous reminiscences from several members.

Dr. L. E. Dean discussed charity cases and a "dead-beat" list. Dr. Jack Rowlett discussed methods by which such lists are compiled.

Dr. W. M. Wallis, Jr., discussed a plan under which the hospital could take charity cases in a special ward at a specified rate per bed per week which would not make them the burden they are at present. Dr. C. P. Fryer discussed this plan, and moved that the Society endorse it. Dr. C. D. Humberd seconded the motion, which carried. Dr. Fryer moved that the chair appoint a committee to confer with the city commission and the county court regarding the plan. Dr. W. M. Wallis, Jr., seconded the motion, which carried. Dr. C. T. Bell discussed the question from the viewpoint of the system under which the hospital

now gives service to the students at the Northwest Missouri State Teachers' College. Dr. C. W. Kirk related the method by which pauper funds are apportioned by the county court. The chair appointed Drs. W. M. Wallis, Jr., C. V. Martin, and W. M. Hindman to this committee.

Dr. L. E. Dean discussed the situation of the present county health bureau and moved that the Society endorse the activities of the present county health officer and his system. Dr. W. M. Wallis, Jr., seconded the motion, which carried. Dr. C. W. Kirk moved that this endorsement be supplemented by a personal letter to the county court from each member. Dr. C. D. Humberd seconded the motion, which carried. Dr. C. P. Fryer, county health officer, thanked the Society for these measures.

Dr. C. T. Bell moved that the standard fee bill of the Society be declared null and void. Dr. Jack Rowlett seconded the motion, which carried.

The Society adjourned at 9:00 p. m.

#### Meeting of March 13, 1931

The Society met in the lecture-room of the St. Francis Hospital, Maryville, Friday, March 13. The meeting was called to order by the president, Dr. K. C. Cummins, Maryville, at 7:30 p. m. The following members were present: Drs. Chas. T. Bell, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person, Jack Rowlett and William M. Wallis, Jr., of Maryville; Eugene L. Crowson, Pickering; C. J. Garding, Conception Junction; W. M. Hindman, Burlington Junction; C. D. Humberd, Barnard. The guests of the Society were: Dr. W. C. Gayler, St. Louis, President of the State Medical Association; Dr. E. J. Goodwin, St. Louis, Secretary-Editor; Dr. E. P. North, St. Louis, and Dr. James R. McVay, Kansas City, representing the Postgraduate Committee of the State Association; Dr. George R. Seikel, of the Northwest Missouri State Teachers' College faculty; Drs. Earl Braniger, Jesse Miller and W. B. Owen, dentists, of Maryville, and Sisters from the hospital staff. The program for the evening was furnished by the officials of the State Association.

Dr. E. P. North addressed the Society on "Eye Diseases and Their Relationship to the General Practitioner." He gave a brief discussion of trachoma and of the common nonspecific eye infections, and reported four cases of interesting eye injuries caused by steel and glass. Dr. North's talk included many very practical and valuable points.

Dr. W. C. Gayler was introduced by the president and spoke at some length on the importance of the work that is being done by the State Association in various fields. He mentioned some of the troublesome problems which the state officers and committeemen had encountered in their long years of experience in official capacities. He then read a paper on "Obstetrics from the Mechanical Viewpoint," and reported three very interesting cases which had showed mechanical complications. His essay included material on fibroid tumors, breech presentations, abdominal pregnancies, and death of the fetus in utero. Dr. Gayler's paper was discussed by Dr. William Wallis, Jr., Maryville.

Dr. E. J. Goodwin spoke on the medical measures which were being considered in the current session of the legislature. These included



the Workmen's Compensation Act, the Vaccination bill, the Optometrist bill, and various minor bills, whose aims were cultist propaganda. Dr. Goodwin also mentioned the worth and importance of the work which is being done by the secretaries of the county medical societies.

Dr. J. R. McVay presented a paper on "The Value of the Rectal Examination." He stressed the frequency of carcinoma of the rectum, gave a brief outline of the three types of rectal malignancies, and emphasized the importance of a digital examination as a routine, to be supplemented when indicated by proctoscopic and radiologic examinations.

Dr. K. C. Cummins, Maryville, thanked the speakers on behalf of the Society for their kindness and courtesy in visiting us and presenting these instructive lectures.

The application of Dr. Horace S. Dowell, formerly of Maryville but now of Chillicothe, for transfer to the Livingston County Medical Society was presented.

Dr. W. M. Wallis, Jr., Maryville, moved that the Society adjourn. The motion was seconded by Dr. Jack Rowlett, Maryville, and carried at 10:35 p. m. A number of the members indulged in an informal lunch with our guests at the Grenada Cafe.

L. E. DEAN, M.D., Secretary pro tem,  
CHAS. D. HUMBERD, M.D., Secretary.

### PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met February 3 in the assembly room of the Pike County Hospital, Louisiana, with the newly elected president, Dr. E. M. Bartlett, Clarksville, in the chair.

Dr. Charles P. Lewellen, Louisiana, read a well composed paper on "Review of Modern Therapeutics," a wide subject but well condensed and efficiently handled. He emphasized the uselessness of a large number of drugs and mentioned a comparatively small number which could be considered valuable and reliable from a therapeutic standpoint. He gave a similar classification of glandular products, sera, vaccines, etc., and evaluated physiotherapy and therapeutic procedures, such as venesection lumbar puncture, gastric and duodenal lavage, paracentesis, etc.

An extensive and interesting discussion followed, Dr. Lewellen closing.

After adjournment refreshments were served by Miss Hornback, superintendent of Pike County Hospital, and Mrs. Shotwell, chief of nursing staff.

The following members were present: Drs. E. M. Bartlett, Clarksville; R. L. Andrae, E. A. Cunningham, J. W. Crewdson, C. P. Lewellen and C. D. Scott, of Louisiana; T. H. Wilcoxon, Bowling Green.

#### Meeting of March 4, 1931

The Society met March 4, at 8:00 p. m., in the assembly room of the Pike County Hospital, Dr. E. M. Bartlett, Clarksville, president, presiding. The minutes of the February meeting were read and approved.

On motion, seconded and carried, the secretary was instructed to send a floral offering for the funeral of Judge Edward Biggs, Bowling Green, deceased father of Dr. James Biggs, Bowling Green, and brother of Dr. M. O. Biggs, Louisiana.

The secretary was instructed to invite Dr. M. F. Arbuckle, St. Louis, as our guest and principal speaker at the April meeting, and also to invite the

surrounding county physicians as guests. A dinner will precede the meeting.

A paper on "Ectopic Pregnancy" was read by Dr. E. A. Cunningham, Louisiana. The paper was grouped under the following headings: History, Etiology, Types, Diagnosis, and Treatment. Under "Diagnosis" the salient points brought out were: A history of antecedent salpingitis, age of patient, previous amenorrhea followed by a flow, or without a flow; signs of internal hemorrhage with sudden onset of acute pain in lower abdomen, collapse; usually normal temperature with leukocytosis but low hemoglobin percentage and red cell count. Differentiation was made between tubal abortion and tubal rupture. Two hospital cases were related and one patient was presented.

The subject was freely discussed.

Following adjournment refreshments were served by Miss Hornback and Mrs. Shotwell.

The following were present: Drs. E. M. Bartlett and J. E. Bankhead, of Clarksville; R. L. Andrae, E. A. Cunningham, and J. W. Crewdson, of Louisiana. Guest, Dr. D. M. Pearson, Louisiana.

The following officers have been elected to serve during 1931: President, Dr. E. M. Bartlett, Clarksville; first vice president, Dr. E. A. Cunningham, Louisiana; second vice president, Dr. C. P. Lewellen, Louisiana; secretary-treasurer, Dr. R. L. Andrae, Louisiana; delegate, Dr. T. H. Wilcoxon, Bowling Green; alternate, Dr. J. W. Crewdson, Louisiana.

R. L. ANDRAE, M.D., Secretary.

### SALINE COUNTY MEDICAL SOCIETY

At a recent meeting of the Saline County Medical Society, Dr. H. R. Conway, Marshall, was elected president and Dr. S. P. Simmons, Marshall, secretary-treasurer.

H. R. CONWAY, M.D.

### ST. FRANCOIS-IRON-MADISON COUNTY MEDICAL SOCIETY

On February 27 the members of St. Francois-Iron-Madison County Medical Society were the guests of Dr. Roy C. Kitchell, Bismarck. The meeting was held in the Bismarck schoolhouse. A delicious dinner was served at 6:30 p. m.

A motion was made by Dr. C. C. Winter, Farmington, that the secretary send a copy of the program to Dr. Frank W. Gale, Tucson, Arizona, together with greetings and best wishes for a speedy recovery. The motion was seconded by Dr. W. W. Johnston, Farmington, and carried.

The application for membership of Dr. Morgan Bryan was read for the first time.

The scientific program was furnished by three St. Louis physicians, Drs. George A. Mellies, F. L. Morse and John D. Hayward.

Dr. Mellies read a paper on "The Surgical Aspect of Pleural Effusions."

Dr. Morse spoke on "Bone Graft in Diseases and Injuries of the Spine."

Dr. Hayward gave a talk on "Applied Anatomy in Upper Abdominal Diseases."

These papers were interesting and instructive.

RALF HANKS, M.D., Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The regular monthly meeting of the St. Louis County Medical Society was held at the home of Dr. W. F. O'Malley, Kirkwood, February 11.

Dr. William H. Betts, St. Louis, was elected a member by transfer from the Wapello (Iowa) County Medical Society.

The application of Dr. H. L. Luckey, Maplewood, was read and referred to the membership committee.

A letter from the State Medical Association regarding the Workmen's Compensation Act was read and referred to the committee on legislation.

The following resolution on the control of cancer was adopted:

WHEREAS, The rapid increase of cancer in its various forms is assuming alarming proportions now being second to heart disease as a cause of death, and

WHEREAS, The present cancer situation is a challenge to the medical profession to render an increasing effective service in its diagnosis and treatment, and

WHEREAS, The greatest hope for reducing the increasing mortality from this disease lies in the early diagnosis and treatment, and

WHEREAS, The medical profession and the hospitals are the only forces capable of coping with the cancer problem at this time, and

WHEREAS, There is further need for further education of the medical profession and public as to the need for and value of early diagnosis and early adequate treatment, and

WHEREAS, A constructive program of improved cancer service for the County Hospital and the County Society can be based only on accurate information as to present conditions and facilities for the treatment of this disease, therefore be it

Resolved, That the St. Louis County Medical Society approve and sponsor a survey of the cancer situation by the American Society for the Control of Cancer.

The scientific program consisted of a very interesting talk on "The Social and Health Phases of Cancer" by Dr. F. L. Rector, Chicago, field representative of the American Society for the control of cancer.

A talk illustrated with pictures on the "Clinical Phase of Cancer" was given by Dr. Wm. E. Leighton, St. Louis.

#### Meeting of March 11, 1931

The Society met on March 11, with the following members present: Drs. J. H. Armstrong, C. E. Barnett, H. N. Corley, D. Henry Hanson, A. C. Hof-sommer, C. C. Irick and W. F. O'Malley, of Webster Groves; P. N. Davis, C. P. Dyer, Andy Hall, Jr., Garnett Jones, L. C. Obrock, Joseph McNearney and J. A. Sterling, of St. Louis; C. H. Denny, O. W. Koch and J. D. Stoelzle, of Clayton; R. B. Denny, Creve Coeur; F. J. Petersen, Richmond Heights; J. H. Sutter, University City; F. P. Knabb, Valley Park; W. H. Townsend and E. E. Tremain, of Maplewood. Visitor: Dr. F. C. E. Kuhlman, St. Louis. The guests of the Society were Dr. B. K. Stumberg, St. Charles, Councilor of the Eighth District, and Dr. J. J. Singer, St. Louis.

Dr. Stumberg extended an invitation to the members to meet with the Eighth Councilor District at St. Charles, March 18. The meeting will be held at Lindenwood College.

Dr. J. J. Singer, St. Louis, read a paper on "Diagnosis and Medical Treatment of Lung Abscess."

Dr. J. H. Armstrong, Kirkwood, presented a case of congenital stricture of the rectum.

F. J. PETERSEN, M.D., Secretary.

#### STODDARD COUNTY MEDICAL SOCIETY

The Stoddard County Medical Society met in the office of Dr. Frank LaRue, Dexter, February 6, at 8:00 p. m. The following members were present: Drs. J. P. Brandon and W. J. Hux, of Essex; S. S. Davis, W. C. Dieckman, D. A. Hoxie and Frank LaRue, of Dexter.

The election of officers for 1931 was the principal

order of business. The following were nominated and elected by acclamation: President, Dr. W. C. Dieckman, Dexter; vice president, Dr. S. S. Davis, Dexter; secretary, Dr. Frank LaRue, Dexter; treasurer, Dr. Wm. J. Hux, Essex; delegate, Dr. J. P. Brandon, Essex; alternate, Dr. D. A. Hoxie, Dexter.

Dr. D. A. Hoxie, Dexter, was elected a member of the board of censors for three years to succeed Dr. J. P. Brandon. Drs. W. J. Hux and T. C. Allen hold over.

Dr. J. P. Brandon, Essex, moved that Dr. T. C. Allen, Bernie, be placed on the Honor Roll and excused from payment of dues on account of his being ill and unable to practice. The motion was seconded by Dr. D. A. Hoxie, Dexter, and carried.

FRANK LARUE, M.D., Secretary.

#### WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the office of Dr. J. A. Fuson, Mansfield, Thursday, February 26, at 1:30 p. m. Dr. J. D. Ferguson, Ava, president, presided. The following members were present: Drs. J. A. Fuson, Mansfield; J. D. Ferguson and R. M. Norman, of Ava; R. A. Ryan and A. C. Ames, of Mountain Grove. Visitor, Dr. E. G. Beers, Seymour. The minutes of the last meeting were read and approved.

The secretary reported that letters had been written to our representative and senators at Washington, D. C., at the request of the State Medical Association, and replies had been received. The secretary also read a request from the State Association regarding the Workmen's Compensation Act and was instructed to write our state representative and senator at Jefferson City.

The following tribute to the memory of Dr. E. C. Wittwer, Mountain Grove, who died suddenly February 12, was read by the secretary and a copy sent to his widow:

We hereby express our sincere sympathy to the family of our beloved colleague, Dr. E. C. Wittwer, Mountain Grove, in their bereavement.

We feel that in his death they have lost a loving and beloved son, husband and father, that we have lost an able and worthy fellow physician, and that the community has lost a respected and much needed citizen.

Dr. A. C. Ames, Mountain Grove, read an article published in a popular magazine on the eradication of tuberculosis as being developed by 'Calmette, of the Pasteur Institute, Paris.

An article on the treatment of burns by spraying a solution of tannic acid over the burnt surface, taken from a medical journal, was read by Dr. J. A. Fuson, Mansfield.

The subject, "The most outstanding question before the medical profession today," was discussed. The discussion was opened by Dr. R. A. Ryan, Mountain Grove, and was participated in by most of the members present. It was the consensus of opinion that the most important function of the physician is to relieve the sick and the next most important question and as necessary to it is the problem of making a living.

The following officers were elected to serve during the year 1931: President, Dr. J. D. Ferguson, Ava; vice president, Dr. M. C. Gentry, Ava; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; delegate, Dr. R. M. Norman, Ava; alternate, Dr. A. C. Ames, Mountain Grove. Board of censors, Dr. J. A. Fuson, Mansfield (reelected, term expires 1933); Dr.



R. M. Norman, Ava (term expires, 1931). Dr. L. T. Van Noy, Norwood, holds over (term expires, 1932).

The meeting adjourned at 4:30 p. m., to meet at Ava on May 7.

A. C. AMES, M.D., Secretary.

## CORRESPONDENCE

### ORGANIZATION OF WIDOW'S FUND

To the Editor:

The Committee on Insurance and Memory Funds submits a brief synopsis of the recommendations made to the Executive Committee of the Missouri State Medical Association upon the Widow's Fund.

This resumé is published in order that members may be informed upon the subject and county societies decide what course they wish their delegates to pursue at the Joplin meeting where final action is to be taken.

Rule 1. The name shall be "The Widow's Fund of the Missouri State Medical Association." Payments to be made as soon as possible.

Rule 2. Any member of the Missouri State Medical Association in good standing is eligible during the first year. Thereafter the age limit will be 55 years.

Rule 3. Membership is obtained by application and payment of assessment.

Rule 4. The initial fee shall be two dollars twenty cents (\$2.20) and each assessment thereafter shall be one dollar ten cents (\$1.10), or be prorated.

Rule 5. The sum paid upon death shall be five hundred dollars (\$500.00).

Rule 6. When the amount in the fund is less than two dollars (\$2.00) per member a replacing assessment of one dollar ten cents (\$1.10) shall be made on each member of the fund. Failure to pay an assessment entails loss of membership.

Rule 7. Any member who has been dropped can be reinstated only as if he were never before a member.

Rule 8. The fund is to be governed by a board of trustees.

Rule 9. Meetings of the members of the fund are to be held with the board of trustees and report made at the time and place of the annual meeting of the Missouri State Medical Association.

Application blanks are printed in the advertising pages of this issue of THE JOURNAL. (Page VIII.) These should be torn from THE JOURNAL, filled in and mailed with check or money order for two dollars twenty cents (\$2.20), the initial fee, to Dr. Frank I. Ridge, 1002 Medical Arts Building, Kansas City, Missouri. Make check payable to "The Widow's Fund of the Missouri State Medical Association." If organization is not completed checks will be returned.

At least one thousand members will be necessary for organization.

Checks and applications should be sent before May 1, 1931.

FRANK I. RIDGE, Chairman,  
Committee on Insurance and Memory Funds.

## WOMAN'S AUXILIARY

### OFFICERS 1930-31

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.

2nd Vice President, Mrs. H. B. Goodrich, Hannibal.

3rd Vice President, Mrs. R. S. Kieffer, St. Louis.

4th Vice President, Mrs. W. L. Kenney, St. Joseph.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

### ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. J. A. Chenoweth, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Livingston.....	Mrs. R. Barney, Chillicothe
Linn.....	Mrs. Ola Putman, Marceline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

### CLAY COUNTY AUXILIARY

The Woman's Auxiliary to the Clay County Medical Society held their meeting in the parlor of the Snapp Hotel, Excelsior Springs, on February 26. Dinner was served at six o'clock. Our interest has never been better.

### GREENE COUNTY AUXILIARY

The Woman's Auxiliary to the Greene County Medical Society has had four of the state health lessons, two given by Mrs. U. J. Busiek, Springfield, and two by Mrs. F. T. H'Doubler, Springfield. Mrs. A. W. McAlester, Kansas City, state president of the Woman's Auxiliary, and Mrs. Ralph W. Holbrook, Kansas City, corresponding secretary, were guests recently of the Auxiliary at a luncheon meeting. Both guests spoke about the annual meeting at Joplin in May and a great deal of enthusiasm was shown.

Mrs. C. B. ELKINS, Publicity Chairman.

### JACKSON COUNTY AUXILIARY

The Woman's Auxiliary to the Jackson County Medical Society met at the Kansas City Art Institute, March 6, and spent the afternoon viewing an art exhibit, hearing a musicale, and enjoying a one-act play written by one of the Auxiliary members and presented by the members.

### JASPER COUNTY AUXILIARY

The Woman's Auxiliary to the Jasper County Medical Society met at Joplin, February 17. The following officers were elected to serve for 1931: President, Mrs. J. A. Chenoweth, Joplin; first vice president, Mrs. R. M. James, Joplin; second vice president, Mrs. L. B. Clinton, Carthage; treasurer, Mrs. B. A. Dumbauld, Webb City; secretary, Mrs. U. G. Hoshaw, Joplin.

After adjournment the members attended the meeting of the Jasper County Medical Society and

viewed two reels of motion pictures provided by the American Association for the Control of Cancer.

### LAFAYETTE COUNTY AUXILIARY

The Lafayette County Auxiliary met with the Lafayette County Medical Society in the Junior High School at Lexington, January 27. A turkey dinner preceded the meeting.

The February meeting was held at the home of Mrs. W. E. Martin, Odessa, February 24.

### LIVINGSTON COUNTY AUXILIARY

The Woman's Auxiliary to the Livingston County Medical Society although a young organization is showing a great deal of activity. Hygeia has been placed in three rural schools, and through the organization's efforts the Parent-Teacher Association has placed the publication in the schools and public library in Chillicothe. The members have held several bridge parties.

MRS. R. BARNEY, President.

### NOTES

The Woman's Auxiliary to the Jackson County Medical Society is having the magazines and periodicals bound for the library of the Society.

Mrs. R. McE. Schaufler, Kansas City, member of the Auxiliary to the Jackson County Medical Society, has been appointed a member of the board of directors of the American Social Hygiene Association. Mrs. Schaufler has been state chairman of the Missouri branch of the National Congress of Parents and Teachers for several years.

## TRUTH ABOUT MEDICINES

### NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**PROCAINE BORATE**.—A borate formed by the interaction of p-aminobenzoyl-diethylaminoethanol (procaine base) and boric acid. It contains 58.1 per cent of p-aminobenzoyl-diethylaminoethanol. Procaine borate closely resembles procaine hydrochloride in its actions and uses. When injected subcutaneously, procaine borate exerts a prompt and powerful anesthetic action. It is nonirritant. Its action is enhanced by the addition of a small amount of epinephrine, as in the case of procaine hydrochloride.

**PROCAINE BORATE**.—Searle.—A brand of procaine borate—N. N. R. It is also supplied in the form of ampules procaine borate and epinephrine 1 c.c., containing procaine borate—Searle 0.0216 Gm. and epinephrine 0.00017 Gm. in 1 c.c. G. D. Searle & Co., Chicago.

**LIVER EXTRACT**.—Fairchild.—A complete concentrate of an aqueous extraction of fresh edible liver, freed of connective tissue, lipid, and heat coagulable protein. It is marketed in vials, each containing the material derived from 100 Gm. of fresh liver. Liver extract—Fairchild is used in the treatment of pernicious anemia. Fairchild Bros. & Foster, New York. (Jour. A. M. A., February 14, 1931, p. 529.)

**MARINE LIVER EXTRACT**.—White.—A liver extract representing the water soluble fraction obtained from the livers of fish of the *Gadus* family in a glycerol-water solution. 100 c.c. represents fresh liver, 3,027

Gm. (1 fluidounce represents 2 pounds avoirdupois). Controlled clinical observations show that in pernicious anemia rapid improvement may be expected following the administration of marine liver extract—White. Health Products Corporation, Newark, N. J.

**POLLEN EXTRACTS**.—Arlco.—The following pollen extracts—Arlco (New and Nonofficial Remedies, 1930, p. 29) have been accepted: Grass Mixture No. 1 Pollen Extract—Arlco; Grass Mixture No. 2 Pollen Extract—Arlco; Grass Mixture No. 3 Pollen Extract—Arlco; Ragweed Dwarf and Giant Mixture Pollen Extract—Arlco; Ragweed Mixture Plus Burweed Marsh Elder Pollen Extract—Arlco; Spiny Amaranth Pollen Extract—Arlco; Western Water Hemp Pollen Extract—Arlco. Arlington Chemical Co., Yonkers, N. Y. (Jour. A. M. A., February 21, 1931, p. 613.)

**DIPHTHERIA TOXOID**.—This product (Jour. A. M. A., November 15, 1930, p. 1505) is also marketed in packages of ten immunization treatments containing two 1 c.c. vials of diluted diphtheria toxoid for the reaction test and twenty 1 c.c. vials of diphtheria toxoid for treatment; in packages of fifteen immunization treatments containing one 1 c.c. vial of diluted diphtheria toxoid for the reaction test and one 30 c.c. vial of diphtheria toxoid for treatment. Lederle Laboratories, Inc., Pearl River, N. Y.

**SCHICK TEST**.—A diphtheria immunity test (New and Nonofficial Remedies, 1930, p. 380) marketed in packages of one capillary tube containing undiluted diphtheria toxin standardized, sufficient for ten tests, accompanied by sterile diluent; in packages of one capillary tube containing undiluted diphtheria toxin standardized, sufficient for fifty tests, accompanied by sterile diluent; in packages of two capillary tubes containing undiluted diphtheria toxin standardized, sufficient for one hundred tests, accompanied by sterile diluent. As a means of control the Schick test control is supplied. National Drug Co., Philadelphia.

**EPHEDRINE HYDROCHLORIDE**.—Gane and Ingram.—A brand of ephedrine hydrochloride—N. N. R. (New and Nonofficial Remedies, 1930, p. 169). Gane and Ingram, Inc., New York.

**EPHEDRINE SULPHATE**.—Gane and Ingram.—A brand of ephedrine sulphate—N. N. R. (New and Nonofficial Remedies, 1930, p. 170). Gane and Ingram, Inc., New York.

**TUBERCULIN OLD (Human)**.—Tuberculin—Koch (New and Nonofficial Remedies, 1930, p. 358) marketed in single 1 c.c. vial packages; also in packages of one 4 c.c. vial. National Drug Co., Philadelphia. (Jour. A. M. A., January 3, 1931, p. 39.)

**POLLEN EXTRACTS**.—Cutter.—The following pollen extracts—Cutter (New and Nonofficial Remedies, 1930, p. 31) have been accepted: Oak Pollen Extract—Cutter; Western Ragweed Pollen Extract—Cutter; Western Water Hemp Pollen Extract—Cutter. Cutter Laboratory, Berkeley, Calif.

**TETANUS GAS GANGRENE ANTITOXIN** (Lederle) Refined and Concentrated.—An anaerobic antitoxin (New and Nonofficial Remedies, 1930, p. 343) prepared by immunizing horses with gradually increasing doses of the toxins of *B. tetani*, *B. perfringens*, and *Vibrio septique*. The toxins are individually prepared. The product is marketed in packages of one syringe containing one prophylactic dose, stated to represent tetanus antitoxin 1,500 units, perfringens antitoxin 1,000 units and *Vibrio septique* antitoxin 10 units. Lederle Laboratories, Inc., Pearl River, N. Y.



## BOOK REVIEWS

**TREATMENT OF EPILEPSY.** By Fritz B. Talbot, M.D., Clinical Professor of Pediatrics, Harvard University Medical School; Chief of Children's Medical Department, Massachusetts General Hospital. New York: The Macmillan Company. 1930. Price \$4.00.

This volume gives a rather general resumé of what has been generally known concerning epilepsy. Less than a third of the contents is devoted to etiology, prognosis and symptoms and more than half to the dietary treatment of epilepsy with very considerable detail upon the ketogenic diet, its use and results. There is nothing new in the volume. The bibliography is fairly good. F. M. B.

**PRACTICAL TREATISE ON DISEASES OF THE DIGESTIVE SYSTEM.** By L. Winfield Kohn, M.D., F.A.C.P., Formerly Assistant in the Gastro-Intestinal Clinic, Johns Hopkins Hospital, Baltimore; Chief of the Clinic of Gastro-Enterology, Medico-Chirurgical College, Philadelphia, etc. Illustrated with 542 engravings, including 7 full-page colored plates. Volumes I and II. Philadelphia: F. A. Davis Company. 1930. Price \$12.00.

In the preface, the author states that his purpose is to aid in stimulating a more extensive study and understanding of the conditions affecting the alimentary tract. This he accomplishes most admirably. The subject matter is taken up in chronological order. He gives much attention to disturbances of the digestive tract from the neurological standpoint, which is an innovation in American literature. The chapter on history is of untold value, especially in this specialty. The same can be said of the chapter on intragastric photography which though still in its infancy he has portrayed with excellent illustrations.

The author is to be congratulated upon placing so much material within the covers of two volumes. Written in excellent style the text is easy to follow and covers every phase of diseases of the gastro-intestinal tract, including liver and pancreatic diseases. He does not stress very much esophagoscopy and gastroscopy as introduced by Chevalier Jackson and his associates.

The reviewer endorses this book very highly. It is the latest on gastric diseases and the busy practitioner will appreciate it. A. C. C.

**THE TREATMENT OF CHILDREN'S DISEASES.** With Special Formulas and Drugs for Childhood, and a Short Diagnostic Summary of Each Clinical Picture. By Prof. Dr. F. Lust, Director of the Children's Hospital, Karlsruhe. Authorized translation of the sixth German edition with additions by Sandor A. Levinsohn, M.D., Associate Pediatrician to the Barnert Hospital, Paterson, N. J., etc. Philadelphia and London: J. B. Lippincott Company. Price \$8.00.

The author attempts, and with an unusual degree of success, to present a "short diagnostic summary of each clinical picture," as well as an outline of the therapy of each condition. Readable, narrative style is used rather than the verbless notes which tend to make ordinary

"compend" so objectionable. Dr. Levinsohn has translated the sixth German edition of Dr. Lust's work. His frequent though brief "translator's notes" add to rather than detract from its value.

In pediatric articles and books so much emphasis is commonly placed upon pathology, bacteriology, and more particularly on chemistry, that a work primarily from the viewpoint of therapy should receive a cordial welcome. The thinning ranks of general practitioners, always supposed to read as they run, should find the book almost indispensable, for the information it contains is condensed, readily available, and quite abreast of recent pediatric research. Subjects about which there is still great difference of opinion, such as the serum treatment of erysipelas and scarlet fever, are treated as clearly as possible and without bias.

The last quarter of the book is devoted to "Drugs and Formulas Used in Childhood,"—a more complete and satisfactory presentation than I have seen elsewhere. Pediatricians and general practitioners will find Lust's book a good one to own. P. J. W.

**PHYSICAL DIAGNOSIS.** By Warren P. Elmer, B.S., M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine; Assistant Physician to Barnes Hospital; Physician-in-Charge Missouri Pacific Hospital; Consulting Physician to Jewish Hospital, St. Louis; AND W. D. Rose, M.D., Late Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas. With three hundred thirty-seven illustrations. St. Louis: The C. V. Mosby Company. 1930. Price \$10.00.

In the thorough rearrangement and revision of "Physical Diagnosis," by Dr. W. D. Rose, Dr. Elmer has produced a text which embodies many original ideas in teaching this branch of medicine. His long experience as a teacher of physical diagnosis has particularly suited him for the task he has undertaken. He has been able to formulate certain definite conclusions on methods of transmitting this knowledge to the student. It is obvious that Dr. Elmer has directed his efforts to the production of a text primarily for the thorough understanding of the technic of physical examination. The entire first part of the book, comprising well over half of the text, is devoted to this topic. In the second part of the book the diseases of the chest are considered in detail.

While obviously devised for a student's text, the book will be of value to any practitioner interested in a reference book on this subject. The technic of physical examination is thoroughly stressed and is completely modernized. Diseases of the chest are presented in a clear and concise manner. The correlation of the physical examination with the diagnostic aids of radiography and electrocardiography makes it a thoroughly up-to-date work on clinical diagnosis.

The excellent sections on electrocardiography, edited by Dr. Drew Luten, and those on X-ray diagnosis, by Dr. Sherwood Moore, are very valuable additions and give these subjects their proper perspective in the realm of diagnostic methods.

Dr. Elmer is to be congratulated on the production of a text of unique value in teaching physical diagnosis. G. O. B.

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### THE TREATMENT OF HAY-FEVER\*<sup>1</sup>

CHARLES H. EYERMANN, M.D.

ST. LOUIS

Since all types of hay-fever are due to contact with and consequent absorption of pollen it is obvious that there are available two methods of relief: (1) to build up a tolerance for the causative pollen; (2) to avoid contact with the pollen.

In order to build up tolerance for the causative pollen, patients should be treated with the pollen to which they are actually exposed, and to which they are the most sensitive and whose period of pollination corresponds to the clinical history. If a patient has hay-fever in August and has positive skin reactions to the pollen of timothy as well as to the pollen of ragweed, no amount of treatment with timothy pollen will benefit him. He must be treated with ragweed despite the positive skin reaction to timothy. No treatment will be successful unless the extract used is made from the substance causing the symptoms.

Wind-borne pollens are the usual cause of hay-fever. Insect-borne pollen will cause the symptoms if the flower is sniffed or is allowed to dry in the house. Actual and close contact is necessary with this type of pollen before symptoms will occur. In the vicinity of St. Louis, the pollen of oak, willow, poplar, maple, June grass, orchard grass, sweet vernal grass, timothy, and ragweed are the most frequent causative factors.

Having determined, by the correlation of positive dermal reactions with the clinical history, which pollens are responsible for the symptoms, it becomes necessary to ascertain the strength of solution with which to begin treatment. This should be done with the extract which is to be used in treating the individual patient. We have found it satisfactory to use dilutions of 1:100, 1:1000, 1:10,000, and 1:100,000.

\* Read before the St. Louis Medical Society, February 10, 1931.

1. From the Department of Internal Medicine, Washington University School of Medicine, and the Barnes Hospital, St. Louis.

Treatment should be started with that dilution next higher than the one which gave a positive skin reaction. The first dose of this dilution is 0.10 c.c. given subcutaneously, and the amount gradually increased at each subsequent injection. Usually the next dose is doubled; this is followed with 0.20 c.c., 0.40 c.c., 0.80 c.c., of the 1:100,000 dilution; 0.10 c.c., 0.20 c.c., 0.40 c.c., 0.80 c.c., of the 1:10,000 dilution; 0.10 c.c., 0.20 c.c., 0.40 c.c., 0.70 c.c., of the 1:1000 dilution and 0.05 c.c., 0.10 c.c., 0.15 c.c., 0.20 c.c., 0.30 c.c., of the 1:100 dilution. It is our experience that the last dose affords protection for the average patient in the vicinity of St. Louis. It cannot be too strongly emphasized, however, that treatment is a strictly individual matter and that general directions based on response of the average patient will only benefit the average patient.

Based on the fact that it requires seven days<sup>1</sup> for the elimination of pollen extract which has been injected subcutaneously in a normal individual, the interval for these injections should be seven days, so that the prophylactic treatment for hay-fever should begin three months or longer before the onset of pollination of the particular plant causing the symptoms. The injections should be so spaced that the strongest or final dose is given just before the onset of the season. It is the belief of most workers that a maintenance dose should be given at weekly intervals throughout the season. The strength of this dose is that of the last one tolerated before the onset of pollination. Recently, the short interval method<sup>2</sup> has been advocated, i. e., completing the full series of injections in ten to fourteen days or less, by giving daily or even twice daily injections until the strongest possible dose is given just before the onset of pollination. The guide for this method of treatment is that all signs of reaction, both local and constitutional, must have disappeared before the next injection is given and that the dose must not be increased when such reactions occur.

It has been our custom to use the latter method as a matter of necessity in patients who



present themselves too late to institute the long interval method. If they can receive and tolerate an adequate strength of pollen solution, the clinical results seem to equal those obtained by the method in which the longer interval is used.

It seems that the best clinical results follow when one is able to give the largest tolerated dose just preceding the onset of pollination, irrespective of the interval of injection. However, one has seen patients who have been protected by comparatively weak doses of pollen solution and others who required much more than the usual 0.30 c.c. of the 1:100 dilution necessary to protect the average patient in this vicinity. These are exceptions about which one is unable to generalize, and one is unable to predict beforehand which patients will be able to follow any outlined schedule and which patients must be treated strictly according to their own reactions to treatment.

The schedule of doses mentioned is for the average case. However, the increment in dose should be judged by the occurrence, persistence and severity of the local reaction, or the development of constitutional symptoms of allergy. If the local reaction of heat, redness, swelling, or itching remains longer than twenty-four hours, the next dose should be reduced slightly and cautiously advanced beyond the dose which gave the reactions. If a constitutional reaction follows an injection then the next dose should be reduced at least 25 per cent and then gradually increased; if a constitutional reaction recurs when the dose of the first reaction is reached, the tolerance dose for that patient should be considered to be just below the level of the dose causing the reaction. When the constitutional reaction is due to a too rapid increase of dose or to an intravenous injection, it is possible to advance the dose beyond the dose of a previous constitutional reaction.

It is evident, therefore, that doubling the dose as outlined may be followed by unpleasant reactions and that increasing the dose by one-half or less should be the proper method in certain cases.

It is a frequent occurrence to have positive dermal reactions to more than one grass pollen so that it is perplexing to choose the proper pollen for treatment because specificity is a very important factor in determining the results of treatment. In this vicinity, June grass, orchard grass, and sweet vernal grass will begin pollinating from the middle to late May, and timothy from the middle to late June. The clinical history in correlation with dilution tests will indicate which pollen to use, and one must remember that the early spring grasses frequently begin to shed their pollen before the

trees have finished pollination and that English plantain begins to pollenate from the middle to late May. Treating with the pollen which reacts in the weakest (or greatest) dilution will answer this problem if the dermal test corresponds to the clinical history.

Many eastern workers believe that a sufficient number of timothy injections will protect against any other grass pollen, a theory which is supported by a certain amount of experimental evidence.<sup>3</sup> In our own experience, however, better results have been obtained in those grass-sensitive patients whose symptoms begin from the middle to late May, by treating with June grass, orchard grass or sweet vernal grass (whichever one gives the strongest dilution tests) combined with timothy injections. Treatment with either short or giant ragweed is satisfactory for those having August hay-fever. Patients whose symptoms are due to trees and are found sensitive to several species of the same genera need be treated only with the extract of the tree pollen to which they have the greater exposure. However, there is no cross protection between genera.

Coseasonal or phylactic treatment works well only in some cases. The consensus favors a small dose but there is no accepted method of treatment; some give the injections daily or even one to three times daily, others at the usual five to seven day interval. It is our practice to give coseasonal injections daily until the patient is more comfortable, the interval of injection then being determined by the well-being of the patient. At the same time, the patient is tested for sensitivity to allergen other than pollen and advised as to the manner in which he can avoid pollen contact. It has seemed to me that the latter is more important than the former.

Constitutional reactions following pollen injections given in the proper manner do not occur often enough to stand in the way of treatment. They may begin within a few minutes after the injection, and practically always within an hour. As a rule, the sooner they begin the more severe and the more dangerous they are. They may be slight or severe, of short or long duration.

The early symptoms usually are a short, dry, hacking cough frequently repeated, together with a rapidly increasing size of the local reaction at the site of injection. The early symptoms may also be an itching of the palm, ear, soft palate or sole, congestion of the face, suffusion of the conjunctiva, sneezing and nasal blocking and coryza, and wheezing respiration, the latter even in those who never have had asthma. The reaction may go on to syncope with fast small pulse and practically immobile

chest. At times the local reaction involves the whole arm, and often the sites of other injections develop wheals. Constitutional reactions may, however, occur without local reaction. Occasionally there is a generalized urticaria with or without edema of the eyelids, face or extremities. If the constitutional reaction is not checked in its incipency, the state of the patient becomes alarming. Death has occurred from these reactions. The causes of constitutional reactions may be ascribed to the following:

1. *Too Rapid Increase of Dose.*—This cause can often be avoided by careful questioning of the patient concerning any local or general reaction from the dose immediately preceding. Every suspected constitutional reaction should be followed by the same or a diminished dose, never by an increased dose.

2. *Injection Directly Into the Vein.*—This is difficult to avoid. Withdrawing the plunger before injecting the extract to see if a vein has been punctured is helpful but not always dependable. This type of reaction is the quickest in onset, often developing immediately. If given in the outer aspect of the arm over the insertion of the deltoid muscle the injection will, with reasonable certainty, not enter a vein.

3. *Too Brief an Interval Between Doses.*—It has been shown that seven days are required for the elimination of pollen extract injected subcutaneously in the normal individual, so that too brief an interval between injections may lead to a cumulative effect and a reaction may occur even if the dose has been properly estimated.

4. *The Substitution of a Fresh Extract For an Old One During the Course of Injections.*—Extracts in use for as short a period as one week may deteriorate through aeration caused by repeated withdrawal of doses from the vial, and by dilution with the water of sterilization remaining in the syringe after boiling. The substitution for such an extract of one that is fresh produces a dose stronger than was intended and may lead to a reaction.

The treatment for constitutional reactions should be instituted immediately with the onset of the first symptom, even if a local reaction is not present. A tourniquet is applied above the site of the injection or test responsible for the reaction and one-half to one c.c. of adrenalin chloride (1:1000) is injected subcutaneously above the tourniquet or in the opposite arm, the dose depending upon severity of symptoms. Unless improvement is apparent within five minutes, the injection is repeated. In severe cases, adrenalin may be administered by the intravenous method. In our experience, it has also been found efficacious to inject adrenalin immediately above the local reaction and also

into the local reaction. In this event, it has been found unnecessary to use the tourniquet. As a rule, recovery is followed by no special symptoms, but occasionally patients may have mild asthmatic symptoms for several days thereafter, or recurrent attacks of urticaria or pruritus.

Clinical study of hay-fever patients in whom the therapeutic result was not good has shown that many of them were hypersensitive to substances other than pollen.<sup>4</sup> When they avoided these other substances and in addition received pollen injections, a much better therapeutic result was obtained. In our experience, some hay-fever patients who were sensitive to allergens other than pollen, had a comfortable season without pollen injections<sup>5</sup> merely by avoiding the other substances. These substances most often are orris root, pyrethrum, and animal dander among the inhalants, and wheat, egg, milk, chocolate and fruits among the foods. Patients who have a tendency to frequent afebrile colds in addition to hay-fever are more likely to be multiple-sensitive.

To avoid contact with pollen is the only certain way to prevent hay-fever symptoms. There are many resorts advertised as being free of hay-fever, but this is only true for those who suffer from ragweed hay-fever. There are several ragweed-free areas in the United States and Canada where the "ragweeder" can go and live in comfort, but this does not appertain to those who suffer from grass or early spring hay-fever. The middle of a large body of water is about the only place where grass pollen will not be found, so that hay-fever resorts for the relief of the spring type are very scarce. In general, points along the sea coast where the prevailing winds are off the sea will be found suitable for all types.

Avoidance of contact can also be practiced at home. Practically, it makes no difference how this is accomplished, but so long as one keeps the pollen from alighting on the membranes of the nose, eyes and throat, just so long will one be free of symptoms. Wearing gauze masks covering the nose and mouth and wearing large glasses will prevent contact with an excess amount of pollen and hence make one more comfortable; sleeping in a closed room or taking quarters on the topmost floor of a tall hotel will make a change from discomfort to comparative comfort or even complete relief. Closing the wind shield and the nearest window will in many instances make the automobile ride one of comfort instead of a continual sneeze. Breathing through a handkerchief held lightly over the nose and mouth will filter out enough pollen so that a train or street car ride can be enjoyed in comfort. Frequent washing of the



hair will many times, especially in women, give a more comfortable season. No matter how it is accomplished the principle of avoidance of contact is basic and the results obtained will be commensurate to the diligence with which this principle is followed. Recently several types of so-called air filters have been devised. In our experience, they have proved helpful in lessening the contact with pollen. In some instances it has not been necessary to resort to these rather high priced filters, for seemingly as good results have been obtained by a simple filter, consisting of cotton wrapped about screening with cheese cloth, placed in the window behind a fan.

Symptomatic treatment is useful in lessening the discomfort. The eye symptoms when marked can be alleviated by cold packs and any bland fluid to irrigate the conjunctival sac. The nasal blocking can be temporarily allayed by spraying with solutions containing ephedrine or adrenalin, or in cases of utmost severity, cocaine. However, both eye and nose symptoms can be greatly reduced if the patients be instructed not to rub the eyes or nose, for this merely increases the discomfort by auto-inoculation. It is our practice to withhold these drugs as long as possible. As long as the nasal blocking is only unilateral there is no urgent need for them. At best, the effect obtained from these drugs is transient and they lose their effectiveness with frequent use, so that they are reserved for cases with more or less constant bilateral nasal blocking. Sometimes they are irritative and aggravate the original symptoms. Active intranasal treatment is contraindicated during the period of acute symptoms. If intranasal operative procedures are necessary they should be done long before the expected onset of symptoms so that the new avenues of absorption are healed; or they should be done after the complete subsidence of symptoms. In our experience, the less done to the nose the greater the comfort of the patient.

Atropine in small doses is useful in decreasing the excessive coryza. The oral use of ephedrine has been reported as being beneficial in some cases but has been very disappointing in our experience; so also has the oral administration of nitrohydrochloric acid, which has been recently advocated. In our experience, only six out of thirty-three cases obtained relief from the acid which is far below the reported percentage of benefit. Sedatives may be necessary and often acetylsalicylate is helpful.

#### CONCLUSIONS

The failures to obtain satisfactory therapeutic results with pollen injections in hay-fever are due to:

1. Incorrect diagnosis; which implies the use of the wrong pollen solution as the result of failure to correlate dermal reactions with clinical history.

2. Inadequate or improper treatment; which implies the administration of an insufficient amount of pollen solution, or the termination of treatment much too long before the onset of pollenation, or failure to be guided in dosage of pollen solution by local or constitutional reactions.

3. Contact with unusual amount of pollen; which might imply that the patient was not advised as to those safeguards which decrease pollen contact, or the manner in which contact with large amounts could be avoided.

4. Failure to realize the possibility of hypersensitivity to substances other than pollen, and their influence upon the symptoms.

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## ACUTE OBSTRUCTION OF THE SMALL INTESTINE

EARLY DIAGNOSIS AND TREATMENT \* 1

JAMES E. STOWERS, M.D.

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Acute obstruction of the small intestine continues to have one of the highest death rates in surgery of acute conditions within the abdomen. There has been little change in this rate during the past several years. The very slight decrease noticeable should be attributed to early operation for the obstruction and to the therapeutic application of experimental work on blood chemistry and pathological physiology.

Pain, nausea, vomiting, constipation, abdominal distention, toxemia with rapid and feeble pulse, form the picture of acute intestinal obstruction *in extremis*. It is this type of case that is most often referred to the surgeon for operation. Recognition of intestinal obstruction in its early stage is the most important factor in reducing the mortality after operation.

Obstructions of the large and small bowel are

\* Read before the Western Surgical Association, Kansas City, Mo., December 6, 1930.

1. From the Surgical Department of Research Hospital.

clinically and pathologically entirely separate conditions and present different systemic reactions. Obstruction of the large bowel often fails to give any clear-cut symptom until very late. In obstruction of the small bowel, the symptoms are much more acute and are more severe the higher up the obstruction occurs. In the same proportion the condition is more rapidly fatal. In the presence of strangulation, the conditions are more severe due to the vascular disturbance and the increased absorption of toxins from the injured loops of intestines.

The condition which obstructs the passage of the contents of the intestinal tract may have its origin on the inside of the bowel or on the outside. The obstruction may be mechanical or toxic in origin, or may be caused by paralysis of reflex mechanisms. When the obstruction is mechanical an operation is always required; the spastic and paralytic types usually recover spontaneously. The early symptoms of acute mechanical obstruction are usually so characteristic and pronounced that in most cases a correct diagnosis can be made before more severe and damaging conditions develop. A careful history and physical examination are essential for differentiating the pathological conditions producing the symptoms in order that proper treatment may be instituted.

The earliest symptom of acute obstruction of the small intestine is pain in the abdomen, usually rhythmical and paroxysmal, coming on promptly with the initial arrest of the intestinal contents. The pain is generally localized just above the umbilicus, but it may occur in the epigastrium. It is persistent, does not radiate and is not relieved by vomiting. The vomitus at first consists of gastric contents, later becomes bilious and then, after some hours, is fecal in character. Gastric lavage does not relieve the pain.

Associated with pain and vomiting there is constipation, usually complete. One should not be deceived by one or more bowel movements with the passage of flatus after the initial onset of the symptoms. These movements may be occasioned by enemata but no relief of the condition or of its symptoms is accomplished either by enemata or by natural movements, the latter probably being due to heightened motor reflexes initiated by the inflammatory process. The temperature is generally normal, but may be subnormal, the pulse rate is usually normal and the leukocyte count little changed.

These are the symptoms of the very early stage of acute intestinal obstruction. Every means of corroborating this diagnosis must be employed for if an operation is not performed at this stage the patient grows worse in a very few hours. The peristalsis of the gastro-in-

testinal tract, induced by the processes developing in the areas of obstruction as evidenced by griping pains and vomiting, soon becomes greatly increased. By this time the vomiting is correspondingly increased and usually fecal.

Very little or no distention of the abdomen is discernible in the early stages, particularly if the abdominal wall is very muscular. When distention first appears it is usually localized in the region of the obstruction. Later it becomes generalized. Should the obstruction be high up there will be little distention but much vomiting. In this stage, along with increasing distention, peristaltic waves will be noted in thin individuals and distended loops of intestines filled with gas or liquid can be palpated.

Gangrene of the intestine with its associated toxemia and beginning peritonitis develops at this time at the site of the obstruction. Coincident with the beginning of gangrene the pain subsides but the nausea and vomiting continue and the distention becomes more marked; peristalsis ceases due to the paralysis of the gut; the leukocyte count is elevated due to the inflammatory changes in the peritoneal cavity; the pulse rate is increased and there is a corresponding rise in the temperature.

In marked contrast to this symptom-complex, paralytic ileus and allied conditions resulting from altered innervation or from inflammatory changes in the intestinal tract present as their initial symptom, distention of the abdomen with little or no pain. When pain is present, an inflammatory obstruction associated with the ileus will be found at operation in the greater percentage of cases. Auscultation of the abdomen in paralytic ileus reveals no sounds; but where there is a mechanical obstruction marked rumbling and gurgling are heard due to the increase of intestinal peristalsis stimulated by the distention produced by excess of gas and liquid down the tract.

An early and positive diagnosis of acute intestinal obstruction can be made by the roentgen ray in most cases. In 1911 Case<sup>1</sup> first emphasized the importance of distended loops of small intestine seen in roentgenograms of the abdomen. In a normal condition roentgenograms show no gas in the small intestine. In certain stages of stasis of the small intestine not caused by obstruction gas produces shadows in irregularly spaced web-like or reticulated areas located more or less in the center of the abdomen.

In acute obstruction of the small intestine the loops of the distended gut produce shadows on the roentgenogram which are parallel to one another and arranged in stepladder fashion, one above the other. The distended loops themselves produce a herringbone appearance, as described by Case, with feathery markings and



serrated borders because of the prominence of the folds of Kerkring. As the obstruction increases in degree the intestinal wall becomes taut, the coils straighten out with marked buckling at the turns and the markings of the valvulae conniventes disappear.

In obstruction of the colon the large gas shadow begins at the cecum and ends abruptly at the site of the obstruction. The lateral position of the shadow with its usual course and haustral markings tends to differentiate it from small intestinal obstruction.

In the past it was thought important to transport patients to the roentgen ray room to have roentgenograms taken with a Bucky diaphragm and the patient in a standing position but patients with acute obstruction are usually too sick and in too much pain to be moved. Under such conditions it is the custom at Research Hospital to use the portable roentgen ray apparatus at the bedside and take a flat plate of the abdomen without inconveniencing or injuring the patient. In this way we conserve the strength of the patient and avoid interfering with the medical treatment already being administered.

If for any reason surgical intervention for a probable intestinal obstruction is postponed for twenty-four hours or longer, a further study of the obstructed bowel is possible by means of barium. It has been repeatedly observed by Dr. Ira H. Lockwood, roentgenologist at Research Hospital, that barium administered by mouth for a gastro-intestinal study of a probable acute obstruction furnishes important information and at the same time is of some therapeutic value. Contrary to all teaching, we have found that no danger need be feared in the use of barium in this manner as no complications have been observed with barium in the obstructed intestinal tract. One case of acute complete obstruction under study with barium in the obstructed loops was followed by Dr. Lockwood for 409 hours by means of examination of flat plates taken at intervals. During all this time no untoward symptom of any nature was noted. At the end of 409 hours the barium was daily observed to empty through an anastomosis performed by operation to relieve an obstruction, until all of it had disappeared from the intestinal tract. Following the administration of barium by mouth to a patient with acute intestinal obstruction who had been vomiting almost incessantly, we have also observed that the vomiting ceased after a few hours and seldom recurred. We have no theory to explain this phenomenon unless it be that the weight of the metal in the intestines produces a cessation of antiperistalsis of the intestinal tract.

A recent case illustrative of the use of barium in acute intestinal obstruction was that

of a boy, aged 16, operated upon for a ruptured appendix and generalized peritonitis on September 17, 1930. For the first four days his progress was uneventful. Then, under stress of undue excitement in the hospital, he got out of bed and walked about the room. There immediately followed an attack of paralytic ileus with acute dilatation of the stomach, which responded in a normal manner to the usual expectant medical treatment. On November 11 he began to have crampy, rhythmical and paroxysmal pains in the region of the umbilicus. He had had some distention, which increased rapidly and was soon followed by fecal vomiting. He was unable to retain anything in his stomach. Gastric lavage, enemas and hot stupes to the abdomen failed to give relief. Blood chemistry at this time showed the blood chlorides, estimated as sodium chloride, to be 3.60 gms., the carbon dioxide combining power 70 per cent and the nonprotein nitrogen 37 mgs. The leukocyte count was 21,600. An operation was suggested but not countenanced by the family. Dr. Lockwood made a roentgenological diagnosis of an almost complete obstruction of the intestinal tract in the region of the terminal ileum (fig. 1). At Dr. Lockwood's sugges-



Fig. 1. Plain negative showing the distended coils of small intestines assuming a transverse position across the abdomen.



Fig. 2. Seven hours after barium meal. Some barium remaining in stomach. Some had passed into the distended coils of small intestine.

tion, three ounces of a barium sulphate mixture were administered by mouth on November 12 at 3 p. m. About two hours later the nurses reported that the patient had vomited practically all the barium. At 8 p. m. another three ounces of the barium mixture were given, a portion of which he vomited. From this time on he did not vomit. Flat plates of the abdomen were taken the following morning and again at intervals (fig. 2) until 109 hours (fig. 3) had elapsed when it was noticed that the barium was beginning to trickle through into the cecum. The morning after the administration of the last barium he had much less distention and pain and his general condition was improved. On November 15 he had a normal bowel movement and distention was very slight. He showed a subsequent rapid improvement with normal daily bowel movements and no flatulence or discomfort after meals. He was discharged from the hospital November 27 as cured.

We do not advise the routine use of barium by mouth in the roentgenological diagnosis of all cases of intestinal obstruction, but we do believe it has its merits in selected cases. It certainly has no place in the diagnosis of the dangerously ill patient where an immediate

operation is imperative. However, if for any reason an immediate operation is not performed we would not consider the physical condition of the patient nor the possibility of complications arising from such a procedure to be a contraindication for the oral administration of barium.

The administration of barium in the roentgenological diagnosis of acute obstruction of the large bowel is seldom necessary as barium enemas are sufficient in most cases for arriving at a definite conclusion of the pathological condition that is causing the obstruction and its site.

Many cases of intestinal obstruction have insidious onsets with no previous history of illness, operation or hernia. An incarcerated femoral, inguinal, umbilical or postoperative hernia is diagnosed with ease. In fact, this diagnosis is usually correctly made by the patient. Obstruction due to internal hernia, intussusception, volvulus, bands and other causes are more complicated from a diagnostic standpoint. Other conditions producing symptoms of an acute disturbance in the abdomen simulat-



Fig. 3. Thirty-seven hours after barium meal. Coils of intestines distended. This case was observed for 109 hours. Considerable opaque media had passed into the colon.



ing acute obstruction, viz., acute hemorrhagic pancreatitis, ruptured ectopic gestation, acute cholecystitis, ovarian cyst with twisted pedicle, can be excluded by a careful history, by physical examination including the rectum and vagina, and by laboratory findings. One should keep in mind also acute generalized peritonitis with symptoms of colicky pain, vomiting, distention, tenderness over the abdomen, temperature and leukocyte elevation and marked prostration. This condition is different from intestinal obstruction in that its onset and progress are much slower. In peritonitis there is always an associated history of gallbladder, appendiceal or tubal disease. Mesenteric thrombosis likewise has an insidious onset, with severe pain in the abdomen associated with vomiting, but in this condition there is a rapid pulse, distention and marked shock. There is also a history of bloody stools followed shortly by constipation.

A vast amount of work has been done on the causes of death in acute intestinal obstruction but unfortunately the conclusions of many of the investigators do not coincide. To date the theories are many and each has its exponents.

Gatch, Trusler and Ayres<sup>2</sup> in 1928 corroborated the work of Hausler and Foster in 1924 in concluding that there were two different types of mechanical obstruction (1), a simple acute obstruction without vascular changes or gangrene, and (2) a strangulation with obstruction of both the bowel and the blood supply. Pathologically and therapeutically these conditions are entirely different. In correlating the work of others these investigators arrived at the opinion that death in acute simple obstruction without gangrene is due to dehydration and loss of chlorides by vomiting and starvation. In this type of obstruction death is not due to a toxemia, there not being a sufficient amount of toxin absorbed to cause death. Where there is strangulation there is also dehydration, hypochloremia, and marked absorption of toxins formed in the gangrenous, necrotic and distended bowel by bacteriological action on the stagnant intestinal contents. The pharmacological action of this toxin is very similar to that of histamine.

The changes in the chemistry of the blood in acute intestinal obstruction are very characteristic in the late stages. The blood chlorides, estimated as sodium chloride, may be reduced as low as or lower than half the normal. There is noted also an increase in the nonprotein nitrogen and urea and frequently there is seen a tremendous increase in the carbon dioxide combining power. Haden and Orr<sup>3</sup> have long stressed the importance of the administration of water and sodium chloride in both the mechanical and strangulation types of obstruction. In

the simple types they have kept animals alive for from twenty to thirty days, the animals finally dying of starvation. In the strangulation types of obstruction this treatment although of some benefit is not permanent because of the toxemia.

Upon admission of a case suggestive of intestinal obstruction a complete blood chemistry should be made, not only for its value in diagnosis but also for information so necessary and important in the preoperative and postoperative treatment. In every case of intestinal obstruction sodium chloride should be administered with large quantities of water until the normal chloride level has been attained. The water and salt should be given by hypodermoclysis or intravenously; usually both methods are employed. The amount of the solution required depends upon the physical condition of the patient and the results of the blood chemistry studies. The treatment should be continued after operation as long as the blood chlorides are below the normal chloride level.

Glucose solution should be given intravenously to furnish food and energy and prevent starvation until nourishment can be retained by mouth. Glucose is particularly useful in high intestinal obstructions.

The results of experimental work have had practical application in the treatment of acute obstruction which has materially aided in overcoming the sequelae of advanced conditions and to a certain extent in prolonging life.

The fact that from 30 to 40 per cent (Whipple<sup>4</sup>) of the cases of acute ileus are merely simple obstructions at first and become strangulated if not corrected is one of the strongest arguments for a very early diagnosis and immediate operation. It is imperative, therefore, that an early and accurate diagnosis be made if we are to reduce the very high mortality rate of this dreaded surgical condition. The treatment must be promptly directed toward the cause of the closure of the bowel, for by its relief a marked reduction in the severity and toxicity of the symptoms is obtained. In the strangulated form of obstruction, an early operation for the relief of the occlusion before the onset of toxemia offers the only hope of saving the patient.

Immediate surgical intervention should be instituted as soon as a diagnosis of acute intestinal obstruction is suggested or has been made. On very sick patients who have had considerable fecal vomiting with resulting dehydration, the operation should be delayed possibly for an hour for accessory forms of treatment, administration of water and salt, and gastric lavage. The performance of the operation depends upon the general condition of the patient and the cause of the obstruction. While

the accessory treatment is being given additional information should be sought by roentgen ray.

Corresponding to the suspected point of obstruction, a median or lateral rectus incision is made sufficiently long for a thorough exploration of the abdomen. Immediately upon entering the peritoneal cavity, numerous coils of intestine, markedly gas distended, appear; these should not be allowed to protrude from the incision. With very gentle manipulation, a search is begun for the obstruction. It is better first to locate the cecum; if this is found collapsed an obstruction of the small intestine is assumed. A loop of collapsed gut is then picked up and followed around until the point of obstruction comes into view. In the very early stage the cause of the obstruction can be removed by releasing the adhesions, severing bands, resecting or short-circuiting the area obstructed. In more advanced conditions the treatment of the cause of the obstruction becomes more difficult and depends almost entirely upon the condition of the patient.

ENTEROSTOMY

There continues to be considerable argument concerning the value of enterostomy above the site of obstruction after the obstruction has been removed. If it is true that toxemia arises from the occluded lumen with an associated injury to the bowel wall, why should not this loop be drained to remove the toxins? We definitely know that an enterostomy is of no benefit in advanced cases of intestinal obstruction where there is marked distention with cessation of peristalsis. But where the peristalsis is active we are of the opinion that an enterostomy is beneficial after the cause of the obstruction has been removed. Paralytic ileus arising as a complication following the operation for mechanical obstruction could often be avoided by enterostomy and the patients have a comfortable convalescence. Enterostomy is of particular importance and necessity in every case of intestinal obstruction associated with peritonitis such as occurs with an acute perforated appendix. The enterostomy tube should be placed in the loop of intestine pointing upward and be retained in place by the Witzel method. Whenever possible, the tube should be brought out through the omentum.

In the desperately ill patient with gangrene and peritonitis little can be expected from surgical procedure. Death is almost certain within a few hours. Whatever is done should be accomplished in the shortest possible time and with a minimum of trauma. It is unwise to resect a gangrenous loop and anastomose immediately. At autopsy the sutures that had been inserted in the distended loops of bowel will

be found pulled out. What we advise under these conditions is the procedure previously described, viz., to excise the gangrenous area and bring both ends of the bowel to the outside, and later, when the condition of the patient has greatly improved, do an anastomosis of the two ends of intestine.

CHOICE OF ANESTHETICS

The choice of anesthetics is very important in the surgery of obstruction. Statistics and experimental work show that ether is poorly withstood in acute obstruction and that it increases the shock and the amount of dehydration already present. On the other hand, it has been shown that spinal anesthesia has some benefit in paralytic ileus, especially for the increased relaxation obtained thus permitting thorough exploration with more ease and with less shock to the patient. If necessary, spinal anesthesia can be combined with a very light ethylene or nitrous-oxide oxygen anesthesia to allay the mental reaction upon the patient. A preliminary hypnotic and novocaine should be sufficient in most cases when performing a palliative operation such as enterostomy.

To ascertain the mortality rate of acute obstruction of the small intestine at the present time in Kansas City, an analysis was made of the case records for the last five years at Research, St. Luke's and St. Joseph's hospitals of patients treated by the surgical staffs of these hospitals.

We found and analyzed a total of 238 cases of obstruction of the small intestine. Of these 79 were strangulated, inguinal, femoral, umbilical or postoperative hernias and were not considered in the study other than to note that 7 of the 79 cases died following the operation for strangulation, a mortality rate of 8.8 per cent. Of the remaining 159 cases 9 were not operated upon. They were treated medically and ultimately discharged from the hospital as improved or cured. These were probably partial obstructions. Twelve cases diagnosed as intestinal obstruction died after admission and before their condition permitted surgical interference. Six cases of rather unusual and interesting types were discovered and these should be mentioned separately (table 1). The mortality rate of all cases of obstruction of the small intestine, exclusive of hernia, was 43.3

Table 1. Six Cases of Unusual Interest

Cause of Obstruction	Time of Onset	Operation	Result
Meckel's diverticulum	1 day	Resection	Death
Hemorrhagic ileitis	1 day	Ileostomy	Death
Hemorrhagic infarct	1 day	Freed adhesions	Death
Gallstone	5 days	Removal of stone	Cured
Hernia in internal ring	27 days	Release of intestine, closure of opening	Cured
Blind ileum termination in new-born	24 hours	Ileostomy	Death



per cent. The mortality rate of all cases operated upon was 41.3 per cent. The results of the study of the remaining 132 cases of obstruction are tabulated in table 2.

In the series of 55 cases of obstruction caused by adhesions that were cured, two resections were performed and the bowel drained in each case, and three enterostomies were done in conjunction with the operation for freeing the adhesions. There were no recoveries when enterostomy alone was done.

Of the 9 cases caused by peritonitis that recovered, 5 were treated by enterostomy and release of adhesions and removal of the original source of infection. In the remaining cases the abdomen was drained without removal of the source of infection or freeing the adhesions.

The surgical treatment of the 15 fatal cases consisted of 2 resections, 6 enterostomies, 3 freeing adhesions. In 2 cases exploratory operation only was done. In only 4 cases was the source of the infection removed.

The initial symptom noted in every record was pain. This was accompanied or immediately followed by vomiting, constipation and, later, fecal vomiting, distention and prostration.

A study of the duration of the symptoms before entering the hospital revealed that 22 of the 72 cases of adhesions were diagnosed or suggestive and the patients brought to the hospital within twenty-four hours after the onset of the symptoms. The remaining 50 were ill for from 3 to 7 days before entering the hospital. Of the 138 patients operated upon 94 were emergency operations or at least performed within twelve hours after admission to the hospital.

Mention should be made here that the incidence of obstruction of the small intestine is much more frequent between the second and fourth decades. It is no more frequent in one sex than in the other.

It is apparent from table 2 that the less frequent causes of intestinal obstruction have the highest mortality. The exception is peritonitis which has a mortality of 62.5 per cent, in comparison with adhesions, the next most frequent cause, with a death rate of 23.6 per cent. It

might be stated that in those cases where enterostomy was performed and the patient survived a more comfortable convalescence was noted by the diminished amount of vomiting and toxic symptoms.

In the 132 case records that were studied, ether was used as the anesthetic in 55 per cent of the operations. Ethylene or nitrous oxide-oxygen anesthesia alone was used in 31 per cent and novocaine or spinal anesthesia in 14 per cent. Frequent notation was made on the records that the death of toxic patients with acute intestinal obstruction operated upon under ether anesthesia was attributable to shock.

#### SUMMARY AND CONCLUSIONS

Acute obstruction of the small intestine continues to have one of the highest mortality rates of emergency abdominal surgery.

The ultimate results of operation for acute intestinal obstruction can be improved by appreciation of earlier symptomatology and early operation for the relief of the obstruction.

The routine use of the roentgen ray by examination of the flat plate of the abdomen of patients complaining of crampy abdominal pains, vomiting and obstipation, should materially increase the number of earlier diagnoses of intestinal obstruction. In specially selected cases this examination may be supplemented by a roentgenological examination of the obstructed loop with barium sulphate without fear of untoward complications.

Enterostomy should be employed in all cases of intestinal obstruction due to peritonitis, and it is advisable in all cases of obstruction in the presence of an active peristalsis.

Analysis of the records of 159 cases of acute obstruction of the small intestine of which 138 were operated on showed an operative mortality rate of 41.3 per cent.

Of the 138 cases 94 were operated upon within twelve hours after admission to the hospital.

In the series of 72 cases of adhesions, 22 were diagnosed and hospitalized within twenty-four hours of the onset of the symptoms. The

Table 2. Statistics of 132 Operations for Acute Obstruction of Small Intestine

Cause of Obstruction	Enterostomy	Resection	Freed Adhesions	Release of Obstruction	Gastro-Enterostomy	Combined Methods	Lived	Died	Total	Mortality Rate
Adhesions	13	13	57				55	17	72	23.6
Bands	1	2		4			5	2	7	28.5
Peritonitis	13	2	9			9	9	15	24	62.5
Intussusception				5		1	2	4	6	66.6
Volvulus		2				4		6	6	100.
Mesenteric thrombosis	2					2		4	4	100.
Carcinomatosis	1	1				2	1	4	5	80.
Pyloric or duodenal obstruction					7	1	7	1	8	12.5
Total	30	20	66	9	7	19	79	53	132	40.1

remaining 50 were ill for from 3 to 7 days before entering the hospital.

Local or spinal anesthesia should be the anesthetic of choice in all operations for acute intestinal obstruction. By their use shock is reduced to a minimum.

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## UNDULANT FEVER

### REPORT OF TWO CASES\*

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If it is true that Malta fever was described four hundred years before Christ it is at least equally true that this disease has been allowed to run unbridled for a longer period of time than any other the causative agent of which is visible under the microscope. If we consult certain popular textbooks\*\* on the subject we obtain scant information. If we consult others† we do not find as much as the title in the index. We are dependent upon articles in recent journals for information. The articles are numerous but widely scattered and some apologetically written. For the above reasons and for others to follow all cases of undulant fever ought to be reported as completely as possible so that at some time a talented writer may be able to collect the information, arrange it intelligently and make it generally accessible. In the hope that the reports herein, though they are but two, may yield a point of value they are presented.

A. V. Hardy<sup>1</sup> states that during 1924 and 1925 in the United States, exclusive of Texas, Arizona and New Mexico, ten cases of undulant fever were recognized in six widely separated states. During 1928 and the first five

months of 1929 one thousand cases were diagnosed and these had their origin in forty-two states. Bierring<sup>2</sup> reports on a study of one hundred and fifty cases of undulant fever in Iowa, while Simpson and Frazier<sup>3</sup> account for sixty-three cases in and around Dayton, Ohio. While no cases have been reported from this district I have authentic information that the number of patients treated for the disease, especially further south, is not small. There is ample evidence indicating that the disease is with us.

From a personal communication from our State Board of Health I take the statement which gives the quotation of our state veterinarian that 35 per cent of dairy herds in Missouri are infected with infectious abortion of cattle. A local veterinarian told me that practically all of the big herds in this immediate vicinity are infected. In the extension circular number 52, Extension Service College of Agriculture, University of Arkansas, infectious abortion of cattle is described and it is stated that the problem is becoming more serious every year. According to Kern,<sup>4</sup> surveys show that 90 per cent of cow herds of the country are infected in some regions and practically no region is free. Infectious disease of cattle is most prevalent in those sections where breeding of cattle is carried on most extensively and in those sections where animals are kept in the barn for several months of the year.<sup>5</sup> Of course this means largely dairy herds. Reference to goats as pertains to this disease is conspicuous by its scarcity in the literature available to me.

To make the connection between the two previous paragraphs this historical evidence is quoted from the very excellent paper of Kern<sup>4</sup>: "Bruce, in 1893, first described the organism of Malta fever under the name of *Micrococcus melitensis*. Bang, in 1897, described the cause of infectious abortion of cattle under the name of *Bacillus abortus*. Evans, in 1918, showed that these two organisms, hitherto considered wholly unrelated, were so similar as to be indistinguishable morphologically, culturally, or even by ordinary agglutination tests. Immune sera for one organism will agglutinate the other, and in such high dilutions that only by special agglutinin absorption tests may the organisms be distinguished. They are therefore really specific varieties of a common genus called *Brucella* by Meyer and Shaw (in honor of Bruce) and designated by Evans as *Brucella melitensis* variety *melitensis* (Bruce) and *Brucella melitensis* variety *abortus* (Bang)."

In his article Kern<sup>4</sup> distinguishes between

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\*\* Osler, Striimpell, Anders, Oxford Medicine, Tyson, Thompson.

† Flint, Pepper, Dieulafoy, Eichhorst, Martinet, Leube.

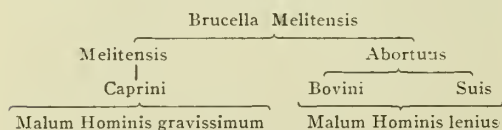


abortus infection and true Malta fever. Even though he refers to different strains of organisms, bovine and caprine, confusion can arise. Consequently the following information is in order: Strümpell<sup>6</sup> states that Malta fever was so called because it was first studied closely among the English soldiers of the garrison in Malta. According to Simpson and Frazier,<sup>3</sup> the International Congress of Medicine held in London in 1913 recommended that the geographic designation Malta fever be replaced with the name undulant fever, as proposed by Captain Hughes of the British Army Medical Staff in 1897. Further: "In view of the wide dissemination of the disease and obvious geographic limitations indicated by the term Malta fever the members of the 'Camera Medica' of the island of Malta and the Malta branch of the British Medical Association have urged that the term undulant fever be adopted for the disease in man." Besides, according to Evans,<sup>7</sup> strains from bovine and caprine sources are now considered to belong to the same bacterial species. So at present the term Malta fever has no place in our literature except for its historical value.

The term undulant fever has no value from the viewpoint that it might be descriptive of the disease. As one reads the various case reports one is impressed with the correctness of the designation, septicemia, which the English commission<sup>8</sup> employed. Septicemia deserves to be retained as does the name of Bruce. Then *Septicemia Brucellae Melitensis* could indicate the disease clinically diagnosed. After bacteriological identity we could say *Septicemia Brucellae Melitensis Caprini* for the goat strain; *Septicemia Brucellae Melitensis Abortus bovinus* for the bovine strain and *Septicemia Brucellae Melitensis Abortus Suis* for the porcine strain.

According to Kampmeier,<sup>9</sup> infection of man with the goat strain leads to a far more serious disease than does that of the porcine or bovine,—another reason for detailed differentiation at times and suitable nomenclature as well.

The amplified classification might be presented in the following graph:



The *Micrococcus melitensis* is a small rounded or slightly oval organism about .5 micron in diameter. It usually occurs in pairs but in cultures short chains are met with. In old cultures there are bacillary forms. It is non-

motile, stains with most dyes and is gram-negative.<sup>10</sup> It exhibits a predilection for the generative organs.

Recently other characteristics have been attributed to it which are of prime importance, namely: blood cultures show no growth earlier than the sixth day.<sup>4</sup> (Our laboratory had discarded cultures as sterile at the end of forty-eight hours.) Special methods are required in isolating the organism from the feces as indicated by Amoss and Poston.<sup>11, 12</sup> That is, the clumping of the organisms with immune serum and after concentration seeding on a special meat extract medium. The above workers have also recovered the germ from the bile by means of methods cited.

That this organism, which requires special menu and treatment in attempts to isolate it from man, has a tenacious parasitic existence can be gleaned from the following quotation in which it also is shown by what means infectious abortion of cattle is transmitted from animal to animal: "Infectious abortion is transmitted from one animal to another most commonly by contaminated feed or water. The organisms are present in the vaginal discharges of the cow that has recently aborted and upon the skin and in the stomach and intestinal contents of the aborted calf. Infection occurs usually in one of two ways: (1) By way of the mouth with contaminated feed and water, or a cow may become infected by licking the buttocks of a cow which has recently aborted. If a cow which has recently aborted, and is still discharging from the vagina, is allowed to run with the other cows this discharge will be very apt to contaminate the grass or feed and the disease be transmitted to other members of the herd. (2) From the udder. Sixty per cent of the cows that have aborted have been found to harbor the organisms of infectious abortion in the udder. It has been found that if the animal again becomes pregnant the organisms very quickly are carried to the uterus where they again set up an infection."<sup>5</sup> Under such circumstances the offal of the cow can hardly escape contamination. It is easy to understand then how hogs encouraged to "follow" cattle, might become infected.

Enlightenment obtained from the literature relative to the morbid anatomy in this disease is extremely meager. In most articles it is not referred to. Kern<sup>4</sup> cites a case of acute endocarditis implanted on a chronic one but was not satisfied that *Brucella* was the cause, although this germ and no other was found in the heart blood. Osler,<sup>13</sup> under the head of symptoms, speaks of arthritic effusions. Ac-





morphine for relief. Pain did not radiate nor were there urinary symptoms. Dr. Cannon was reminded of variola as patient complained. At times there were pains in the legs, at times in the joints especially in the hands and particularly in the thumbs. Has been cinchonized several times and had noticed some sort of red spots on dorsum of hands and feet which Dr. Cannon states were not urticarious.

*Past Personal History.*—Drinks much raw cow's milk; smokes heavily and chews tobacco moderately. No operation. Had typhoid fever twenty-six years ago and was very sick. Every two or three months for years has had severe throbbing frontal headaches, relieved by catharsis. In 1903 was sick for a year with "flux" and passed bloody stools.

*Head.*—There are a few reddish papules on forehead. Hair growth is moderate and fine. Expression is bright yet there is something sickly about it. A number of teeth are missing, several show pyorrhea and all are poorly kept. Chronic pharyngitis (tobacco) is present. There is a mild conjunctivitis, bilateral, and a pannus on left eye. Vision requires correction. There is a labial herpes.

*Neck.*—Mobility free, painless. No adenopathies.

*Chest.*—Full and rounded; respiratory excursions equal but shallow. Normal percussion note and normal vesicular breathing over both lungs. A slight increase in vocal fremitus in left scapular line cannot be explained. Heart area apparently normal; action free, regular, steady. No murmurs or abnormal accentuations. Vessels good, pulse 100, pressure 110/70.

*Abdomen.*—At level. Liver, kidneys, spleen not palpable. Area of liver dullness normal, that of spleen not enlarged. No masses, tender areas, muscle guard or herniae. Appetite nil now. There are no dyspeptic symptoms and bowels move two and three times daily unaided. There is no tenesmus but sometimes urgency. Stools generally yellow liquid, free from pus, blood and foul odor. There are no fissures or hemorrhoids. Genitalia appear normal.

*Extremities.*—None swollen or painful at this writing.

*Skin.*—There is a discrete maculopapular eruption on outer side of legs, fine, disappearing on pressure and causing no symptoms. Patient explains that this eruption has a tendency to appear on different parts of the trunk and legs and each time to disappear in about two days. There are no edemas.

*Nervous System.*—Attitude is somewhat lethargic and there is a tendency to insomnia. Answers questions promptly, intelligently and with animation. Pupils react to light and accommodation; tendon reflexes are equal and normal. There is an ankle clonus. No Babinski, Brudzinski, Kernig, paralysis, parasthesia, and no incoordination.

*General Examination.*—Patient is a well nourished, well muscled, sthenic. There are no enlarged lymphatics.

#### PROGRESS NOTES

April 7/29. Urine amber, clear, acid, 1030, albumin trace, sugar none, bile a trace, crystals, amorphous, hyaline casts, cylindroids a few, epithelial cells a few, pus cells one to five per field, blood none, bacteria few. Blood examination: Leukocytes 18,900, small lymphocytes 12 per cent, polymorphonuclear neutrophils 88 per cent, icterus index 6, Wassermann negative, Kahn negative, plasmodia none. Had profuse diaphoresis at 8 p. m., otherwise a good night. Pulse is soft.

April 8. Slept well, has pain in knees and tarsometatarsal joints. There is slight tenderness but

no swelling or discoloration. Had drenching sweat at midnight. Blood culture still sterile. Vomited at 3 p. m.

April 9. Complains of sore throat which is red but presents no patches or membrane. Had a chill at 1 p. m., felt very bad.

April 10. Had epigastric pain and vomited clear fluid at noon. Again complains of pain in his knees. Urine amber, clear, acid, 1025, albumin none, sugar a trace, bile a trace, crystals present, amorphous none, hyaline casts present, cylindroids few, epithelial cells a few, pus cells a few, blood none, bacteria a few. Blood: Leukocytes 23,000, small lymphocytes 6 per cent, large lymphocytes 2 per cent, polymorphonuclears 92 per cent, no plasmodia.

April 11. Had a good night. Was nauseated at 3 p. m. and vomited a small quantity of mucus at 5. Complains of pain along anterior border of each tibia and across the dorsum of each foot. On the middle third of the anterior border of the right tibia there is a firm oval tumefaction about 2 inches long and ½ inch wide. On the dorsum of each foot there are a few small areas of redness and swelling, not directly surmounting articulations. Heart and lungs normal. Splenic region gives an increased area of dullness. Abdomen is soft and free from masses, tender areas and muscle guard.

April 12. Though bowels have moved once to twice daily unaided, patient requested a dose of castor oil for relief of abdominal discomfort. Relief followed effects of oil. Had a chill at 10:30 a. m.

April 13. Sigmoidoscopic examination: Sphincter of good tone; finger met no obstructions or constrictions. Prostate enlarged but smooth and painless. Sigmoidoscope easily inserted 10 inches. Houston's valves and mucosa normal. No tumors, ulcers, strictures, spasms. A small quantity of free yellow soft stool encountered. Numerous small pinkish macules and papules on the skin of trunk and legs which disappear on pressure and cause no symptoms. Blood culture shows a colony of staphylococcus on one of the two plates. (Contamination.)

April 14. Chilly at 2 p. m., emesis of brownish fluid at 5. No appetite for several days. A new crop of macules and papules in evidence. Pain in the right forearm but no swelling. Gums about lower right incisor and bicuspid teeth bleeding and exuding pus.

April 16. Slept well. Nausea and vomiting at 11:30; refused dinner; chill at 1:35; emesis at 3:30 and 4; refused supper but took and retained milk toast at 7:15. Blood pressure 108/70.

April 17. Slept greater part of night and had a fairly comfortable day.

April 18. Severe diaphoresis at midnight but slept quite well. Chilly at 4 p. m.

April 19. In early part of the night had aching pains in both legs. Rested pretty well in after part of night. Anorexia. At 9 p. m. headache.

April 20. After a good night vomited at 9 and 11 a. m. and refused dinner.

April 21. Had a good night but vomited at 3:45 and 6 p. m. Took little food.

April 23. Had a good night and a painstaking physical examination reveals no pathology. Ankle clonus, tibial nodule not in evidence.

April 25. Several comfortable days. Vomited at 11 a. m. and refused dinner. Leukocytes 16,800; small lymphocytes 8 per cent, large lymphocytes 2 per cent, polymorphonuclears 90 per cent.

April 26. Comfortable day.

April 27. A very restless early night relieved by bromides later. Good day.

April 28. Good night. Between 3 and 7 p. m. vomited brownish fluid three times.

April 29. Good day.

April 30. Vomited at 1 p. m.

May 1 to 5. Aside from vomiting once on May 2, these days were rather uneventful. Patient much better subjectively. Urine clear, acid, 1012, no albumin, sugar, casts, epithelials, or pus.

May 7. Stereoroentgenograms of chest reveal no noteworthy pathology. Ewald test meal at 7 a. m.; recovered 80 c.c. of contents at 7:45. Separated into three layers, a thin upper mucus, a middle copious milky liquid and a moderate lower granular one. Odor of toast. Total acidity 68, free hydrochloric acid 30, combined acid 12 (?). No lactic acid. Microscopically, starch and a few bacteria; no pus or blood.

May 10. Iodeikon intravenously to determine gallbladder function. Considerable depression with tachycardia followed. Response to adrenalin prompt. Of films taken only the 8 hour one was of value. It presented a gallbladder shadow normal in size, contour and homogeneity.

May 11. Patient remarked that he has never felt very badly since his advent into the hospital except for the pains and discomfort during the height of his febrile period. It is remarkable what little inroads the disease (as well as the treatment) has made on him.

May 12. Vomited brownish fluid three times.

May 13. Left the hospital stating he felt well enough to work. Dr. Cannon reports that he was very slow in regaining his strength but that recovery has been complete.

On account of a lack of familiarity with this disease the diagnosis was not made until several weeks after the patient had left the hospital, when the reading of a magazine article recalled the picture. The diagnosis could readily have been made from the clinical symptoms.

The treatment was directed energetically against malaria. When quinine (20 grains between 5 and 11 in the morning) with a mineral acid were given for a number of days without causing aural signs, quinine dihydrochloride was given intravenously with no other effect but shock to the patient. It was then given intramuscularly. For a time quinine was given in 10 grain doses at midnight. A dose of neosalvarsan was also given in the belief that it might be effective.

There is much truth in Osler's dictum that any fever which does not respond to quinine is not malaria; yet Southeast Missouri physicians occasionally are confronted with an exception. Other medication consisted in symptomatic measures and such nursing as is generally prescribed for typhoid fever.

Case 2. A. L., woman, aged 34, single, office worker, Charleston, Mo.

*Family History.*—Father died as the result of an operation for gallbladder disease; otherwise history unimportant.

*Past History.*—Had scarlet fever, measles, whooping cough, mumps and chicken pox in childhood. In 1915 malaria (?) (was tired and "peppless" but

had neither chills nor fever). Had influenza in 1918; no pneumonia. Tonsillectomy four years ago; operation for sinus disease three years ago; hemorrhoidectomy two years ago. Two years ago had cystitis which responded rapidly to medication. In past year was never quite well; had headaches and frequently took several hours off on account of malaise.

*Habits.*—Works in county treasurer's office from 8 a. m. to 5 p. m. and has the responsibility of a household composed of a younger sister, an invalid mother and herself. Drinks about a pint of raw cow's milk daily. Up to three months ago the milk supply came from one source; since then it has been derived from three different sources. (Farmer relatives on visits have been bringing milk and butter.) Six weeks ago visited in the country but drank no more milk than usual, never goat's milk; came in no close contact with any stock. No other members of the family are ill though they drink much more milk.

*Present Illness.*—On June 17, 1930, at 10 p. m. patient was referred to St. Francis Hospital by Dr. W. S. Love, of Charleston, with the diagnosis of pyelitis. Onset of illness had occurred suddenly just two weeks previously with chills, high fever, frequent and painful urination and tenesmus. These were the predominating symptoms on patient's entrance into the hospital. In addition, there was tenderness over each loin, over McBurney's point and over hypogastrium. There was a tendency to keep right knee flexed.

*Head.*—Well formed. Expression while that of a very sick person is intelligent when patient is aroused and talking. Hearing and vision acute. Teeth appear normal. Tongue is quite uniformly covered with a thick grayish coating. Pharynx presents a diffuse dull red color. A constant very annoying dull headache is complained of which patient locates in the right posterior temporal region. Patient continues to replace and displace ice cap and change position of head. There is a slight bloody discharge from the right nostril.

*Neck.*—No rigidity; mobility free and painless; no adenopathies.

*Circulatory System.*—Heart area normal as are the sounds. Rhythm regular and steady. Vessels soft. Pulse 120, good volume; pressure 111/55.

*Respiratory System.*—Respirations somewhat shallow but regular and equal. There is a slight non-productive cough and signs of a mild bronchitis involving the middle sized tubes.

*Digestive System.*—Appetite is maintained; only small quantities of food are taken at a time but at frequent intervals. Has vomited a number of times food apparently being no factor. Vomitus was generally a greenish fluid. Bowels have been moving freely. (Had been given calomel.) Abdomen is above level and tympanitic. Upper liver dullness in fifth interspace; lower border not determined. Spleen not palpable in the region. Kidneys are not palpable but palpation over loins elicits pain and muscle guard. There is further marked tenderness over the appendix and urinary bladder, palpation of the latter area provoking a desire to urinate. Some gurgling in the right lower quadrant. No herniae.

*Genito-urinary System.*—First menstruation at 16, regular every 28 days for three days; scanty flow. In early years cramps required her to go to bed for a few hours. For this she was examined but not operated upon. No interim discharges. No vaginal examination made. Last normal menstruation June 15, 1930. Urinates every 20 or 50 minutes with urgency, burning and tenesmus. Urine turbid, acid, 1012, albumin 1+, no sugar, no ace-







tone. Diazo reaction positive. Microscope shows urates, epithelial cells, pus cells, blood cells, casts, bacteria.

**Nervous System.**—Patient when not fighting headache is somewhat lethargic, but when addressed brightens up, giving quick intelligent answers then becoming excitable, to break into crying when questioned closely or examined at length. The post-temporal headache must be emphasized as an annoying symptom of first magnitude. Pupils react to light and accommodation. No nystagmus, strabismus, photophobia. Deep tendon reflexes are alike on both sides and within normal range. No paralyses, Brudzinski, Kernig, Babinski, or clonus reactions.

**Skin.**—Pale, moist, presenting a few sudamina but no other eruptions. No herpes, and no edemas. Patient complains of having had drenching sweats.

None of the accessible glands are enlarged and bones and joints not swollen or painful.

**Blood.**—Leukocytes 12,600; small lymphocytes 15 per cent, large lymphocytes 8 per cent, polymorphonuclear neutrophils 77 per cent.

**General Condition.**—Patient is a pale, apathetic, moderately well nourished hyposthenic. Temperature 102.2, pulse 120, weight 117 pounds.

In reporting the course of the disease night records will be given first because patient was brought into the hospital at 10 p. m.

Incomplete laboratory reports, infrequent blood examinations, blood pressure determinations, etc., are due in the first instance to lack of familiarity with methods and in the second place to conserving the patient's physical strength and peace of mind, both of which were severely taxed at the mere suggestion of intentions. Days mentioned are to be understood as being hospital days. Let it be known that the first hospital day was in fact about the fourteenth day of the disease.

During the first night patient slept intermittently and restlessly. She vomited early in the morning and had a chill at 11 a. m. followed by elevation in temperature and moderate diaphoresis. She complained bitterly of headache and considerably of bladder pain. She voided 9 times in the 24 hours.

Second day. Voided 11 times. Acetylsalicylic acid and ice cap did not relieve headache. Enema was required to relieve distress from tympanites. There was frequent nausea but no vomiting. No chill, but profuse diaphoresis at 5 a. m. with a temperature drop from 103.4 to 98.6. Widal reaction negative.

Third day. Voided 11 times. No chill, no diaphoresis, no vomiting. Has had 40 grains of quinine in 48 hours (20 grains each morning between 5 and 11 a. m.). Dr. Shelby found an erosion on septum to account for epistaxis. He reports sinuses clear and not responsible for headache; 48 hour blood culture reported sterile.

Fourth day. Patient very nervous. Quinine (?). Headache the same. Voided 14 times, 3 to 6 ounces at a time. Bladder pain stressed. Moaning in her sleep. Requested an enema for comfort; return consisted of highly colored fluid, with fecal masses. Leukocytes 10,200, small lymphocytes 18 per cent, large lymphocytes 7 per cent, polymorphonuclear neutrophils 75 per cent. Roentgen ray films reveal sinuses clear. Profuse perspiration at noon, severe chill for 20 minutes at 2 p. m. Vomited clear fluid at 3 p. m. Upon the skin of the abdomen there are small maculopapular lesions lenticular in size and pinkish red in hue which disappear momentarily on pressure. Five of these are present this morning.

Fifth day. Chill at 8 a. m., nauseated often and vomited twice. Severe headache. Another chill at 2 p. m. followed by terrific diaphoresis accompanied by depression so great as to require intervention with atropine. Voided 12 times. Patient requested an enema for relief of tympanites. Yellowish liquid stool, no blood.

Sixth day. Greatly nauseated and vomited twice. Very nervous; urinated 17 times 3 to 6 ounces at a time. Frequent twitching of right side of face during sleep. Pain in right arm and shoulder. No swelling. No headache. Some roseola have disappeared while new ones are visible.

Report from State laboratory, signed R. L. Laybourn: "Widal reaction not present; paratyphoid test not present; test for undulant (Malta) fever present."

Seventh day. Vomited twice; enema requested for discomfort; takes food with relish. Voided 22 times, smallest quantity 2 ounces; tenesmus. Urine alkaline, albumin +, crystals +, amorphous none, casts none, cylindroids none, epithelium +, pus cell occasional, no blood, bacteria +.

Tenth day. One rigor; nauseated several times but did not vomit. Enema required. Nights always worse there being delirium, twitching, at times carphology. In day time is clear, appetite is maintained food being requested. Frequent urination continued though evidences of infection of urine are not pronounced. Tenderness over loin and hypogastrium no longer present. Abdomen still greatly distended, uncomfortable always and aggravated by palpation.

Eleventh day. Complained several times of feeling chilly; also complains of epigastric pain independent of food; no nausea or vomiting. Epigastric pain still annoying and abdomen so distended and distressing that patient requested three enemas. With all of this she relished fully a generous breakfast. Urine is alkaline, has a trace of albumin and 4 to 10 pus cells to the field. Hemoglobin 55 per cent, white cells 9,600, small lymphocytes 23 per cent, large lymphocytes 4 per cent, mononuclears 3 per cent, polymorphonuclear neutrophils 70 per cent.

Twelfth day. About a repetition of the 11th. No more new roseola; only dull red fading old ones are visible.

Thirteenth day. Very nervous. When apparently asleep talks irrationally and is greatly excited on awakening. Had involuntary bladder evacuation. Complained somewhat of abdominal discomfort but enjoyed all her food. Days are vastly more comfortable than nights regardless of height of temperature.

Fourteenth day. Restless before midnight; slept well after 3 a. m. Had some urethral pain and abdominal discomfort. Some twitching at night but not during day time naps. Enjoyed her meals. Voided urine 14 times.

Fifteenth day. Though she was chilly, had some abdominal pain and talked irrationally, patient and nurse both reported that a better night was spent. Note that urine was voided 18 times between 7 p. m. and 6 a. m. in quantities of one to three ounces.

Sixteenth day. Pretty good night. Chilly sensation at 8 a. m. with temperature of 101.8. Profuse diaphoresis at 11:45 with temperature of 100; slept intermittently but well and quietly. Latter part of day very comfortable.

Seventeenth day. Irrational in the night and talking during broken sleep. Had good day with only a moderate sweat.

Eighteenth day. Though patient voided 8 times, there was quiet sleep with moderate diaphoresis



during the night. During the 12 hours of the day patient voided 7 times. Had a very comfortable day otherwise and enjoyed generous quantities of food.

Nineteenth day. Talked in her sleep, urinated often and complained of abdominal discomfort requiring an enema to relieve in the night. Felt very well all day.

Twentieth day. Uncomfortable before midnight. An enema restored comfort followed by quiet sleep. During the day was annoyed by a "feeling of fullness in her toes" for which physical examination revealed no cause.

Twenty-first day. Much like the 20th. Hemoglobin 60 per cent, color index .7, red cells 3,880,000, white cells 12,800, small lymphocytes 21 per cent, large lymphocytes 4 per cent, mononuclears 1 per cent, polymorphonuclear neutrophils 74 per cent.

Twenty-second day. With a normal temperature patient had a vicious early night because of urethral burning, abdominal discomfort and perspiration. After one o'clock slept pretty well. Had long quiet naps during the day and partook of much food.

Twenty-third to twenty-ninth days were very comfortable ones. Now and again there was transient urethral burning and abdominal discomfort, and frequent urination. Patient cheerful and stronger. On the 28th and 29th days there was an urticaria confined to the abdomen. The eruption was of short duration on each day.

On May 9 patient, having been up in a chair daily for two weeks and walking about for one week, left the hospital. Urine this day was: Spec. Gr. 1.010, alkaline, straw color, cloudy, no sugar, albumin faint trace. No casts, pus cells 3 or 4 to the field, no blood, crystals phosphates. Blood: red cells 4,090,000, white cells 11,300. Hemoglobin 79 per cent, color index .8, polymorphonuclears 64 per cent, small lymphocytes 33 per cent, large lymphocytes 3 per cent. Temperature has not ranged over 99 and patient feels well except for some urinary frequency at times accompanied by a sensation as if bladder could empty itself only provided she would stand. For a number of weeks patient has been on general diet and it is remarkable how rapidly she recovered her strength up to a certain point.

Aug. 14, five days after having left hospital, visits my office. Temperature 98.4, weight 109 pounds. Feels pretty well except that bladder feels as if it does not empty entirely. There is still frequency and at times burning.

Aug. 19. Urinary symptoms about the same. Urine colored from pyridium. Microscopically there are many epithelial cells and 4 to 5 pus cells to the high power field. Irrigated with mercurochrome 1-5000.

Aug. 22. More comfortable; bladder again irrigated with mercurochrome. Temperature 98.4, weight 111½ pounds. Asserts that during her period of high fever her mind was a blank. Can remember nothing about events. Her answers however were always correct.

Aug. 27. Bladder annoying again. Voids a few drops frequently and with pain. No pain in loins. Urine turbid, 1008, faintly acid, albumin, a trace; many pus cells and a few red cells. Has herpetic eruption on mesial aspect of right foot at line of junction of plantar with lateral surface.

Sept. 2. Has had no fever. Still some urethral burning independent of voiding; worse when she stands, relieved by reclining. Weight 112 9/16 pounds.

Sept. 12. Detailed examination of urinary tract: Bladder filled with 1 per cent boric acid solution.

Urethra admitted cystoscope readily. Fundus mucosa dull bluish red, whether the fluid distended bladder greatly or moderately. Lateral walls normal pinkish-white color. Trigon fiery red and posterior to it were some 8 areas of petechial hemorrhage. These areas were the size of a No. 5 shot, some of them projecting above the surface. The ureteral meatuses were flush with the bladder wall when the latter was well distended and stood out papilla-like when some fluid was allowed to escape. Neither was surrounded with an inflammatory areola. Ureteral catheters were accepted and passed full length readily, but were partly expelled when an effort to fill the bladder with an opaque fluid for a cystogram was followed by an attack of tenesmus. Catheters were reinserted and urine collected from each side, some of which was sent in sealed tubes to the State laboratory for bacteriological examination and some retained for a general examination in this office. The results follow: The laboratory reported having found only staphylococci in each specimen. In this office the urine from the right kidney yielded albumin a trace, no sugar. Microscopically a few epithelial and a few red blood cells. The stained specimen revealed no acid-fast bacteria. The left kidney urine was normal chemically. Microscopically a few epithelial cells were noted. The stained specimen presented no acid-fast organisms.

The urine escaped from both catheters in normal interrupted drop fashion. The dye (intravenously administered) appeared on each side in five minutes. Only three fifteen periods of urine collection were made on account of the restlessness of the patient. The amounts and percentages follow:

	Right		Left	
	C.C.	Per Cent	C.C.	Per Cent
1.	30	9	40	11
2.	40	6	60	9
3.	30	4	65	6

Of the films the first shows a normal cystogram with the ureteral catheters partly extruded. The second shows the catheters replaced and no abnormalities. The third shows pyelograms partly blurred by reason of respiratory motion; nevertheless, essentially normal except for a small dense shadow on the left side opposite the transverse process of the third lumbar vertebra which represents a kink in that ureter.

*Diagnosis.*—There is a clinical picture to which Case 1 conformed. On the other hand the distribution of the Brucella in the body may be such as to have now one part of the anatomy suffer the brunt of the insult and now another thus giving rise to varied pictures so that in general the diagnosis must be made in the laboratory. The temperature curve is not always a characteristic one.

As to the management of this disease most writers recommend symptomatic treatment, with such care as is ordinarily given in typhoid fever. Quinine has been reported on favorably but mostly unfavorably. Mercurochrome and acriflavine have been used intravenously with varying results. To vaccines and antitoxin hardly any encouragement had been given, but recently Dr. Fred E. Angle,<sup>15</sup> of Kansas City, Kan., reported 10 cases treated with a mixed vaccine of bovine and porcine type prepared by the Jensen-Salsbery laboratories.

Believing that such treatment was fallacious on the ground that injecting a substance into a patient already overwhelmed with the same poison made an additional tax on the individual, the vaccine supplied by friends of Case 2 was held for several days and only utilized after the insistence of friends and especially of relatives. Even then the initial dose was three minims instead of the prescribed .25 c.c. and the daily increase was not over two minims. Besides, 50 c.c. of Mulford's antitoxin were given subcutaneously with each of the first four doses of vaccine. This bovine antitoxin is to be given intravenously in 100 c.c. doses daily. If there is any ground for cautioning us against administering horse serum to persons habitually in contact with horses, how much more reason would there be for caution against anaphylaxis in the use of a bovine serum in individuals drinking milk, eating beef and being in contact with cattle, as many residents of small towns are apt to be. Aside from the reasons given, I knew that neither the serum nor the vaccine had been accepted by the Council on Pharmacy and Chemistry,<sup>16</sup> though acceptance of the latter had been postponed.

After all this, it is true that the patient felt better subjectively in 24 hours after the first dose and that her improvement while slow was progressive. The temperature curve was decidedly influenced after the third day. Unlike Angle's cases, this patient never had a suggestion of severe reaction. There was no unfavorable symptom. In another case I would adopt the same treatment. Perhaps with the antitoxin I would risk .25 c.c. of the vaccine. I would still fear the antitoxin intravenously.

#### SUMMARY

In summing up these case reports there seems to be some food for thought:

Now and then a case of undulant fever will appear in our midst, its comparative rareness, in view of the extensive infection in domestic animals, being surprising. The question of immunity has not, then, been satisfactorily explained. Perhaps the lactic acid bacilli in buttermilk destroy the *Brucella*; perhaps the *Brucella* is thrown down with the residue in separated milk; perhaps pasteurization of milk as practiced in some dairies is sufficient to devitalize the organism. It goes without saying that boiling milk destroys the germ and is the one prophylactic measure which should be universally employed so long as herds are infected. Perhaps the immunity of children is so accounted for. We still have the question, why the immunity in the large number of individuals drinking untreated milk?

Our laboratories must familiarize themselves with the characteristics of *Brucella* so that clinical diagnosis can be confirmed and doubtful cases diagnosed by examination of blood and urine.

Septicemia is a term which, with qualifications, should be retained. Undulant fever is a constitutional disease in which now one organ receives the brunt of the insult and now the other, and often simulates other diseases, as typhoid, paratyphoid, malaria, arthritis, pyelocystitis, thus making the clinical diagnosis difficult.

The onset in both cases here reported was sudden, unless the malaise of a year's standing in Case 2 was due to brucellosis. Other case reports indicate that the onset may be sudden or gradual.

There was a peculiar involvement of the nervous system. One patient seemed perfectly clear all through the disease when awake yet after recovery remembered nothing of what transpired during a great part of her illness (Case 2). The transient ankle clonus in Case 1 is difficult to explain in the absence of other evidence of disease of the central nervous system.

In both cases there was a diffuse redness of the pharynx. I have not seen this mentioned in the literature.

The respiratory system yielded an area of increased vocal fremitus in Case 1 the reason for which was never determined, while in Case 2 there was a frank bronchitis. This seems to occur frequently.

The circulatory system was involved but only as it is affected by any prolonged febrile disease. The prompt response to digitalis in Case 2 is evidence that the systolic murmur was not due to an endocarditis.

The digestive system claimed prominence in both cases, the most noticeable symptom having been annoying distension to such a degree as to cause the patients to request enemas for relief. Vomiting, too, was here, as usually reported, a very annoying and persistent symptom in both cases. There was nothing characteristic about the act. Neither constipation nor diarrhea required treatment though rectal discomfort induced sigmoidoscopy in Case 1. The appetite was adversely affected in Case 1 whereas the patient in Case 2 ate well all through her illness and at times ordered special food.

In Case 2 there were two amenorrheal periods. Regularity has since been established. The violent symptoms in the urinary tract had to be diagnosed cystitis and pyelitis. When severe pain in the loin developed, with a flexed thigh, perinephritic abscess was a logical di-



agnosis for a time. I did not notice this symptom-complex in the literature nor was it seen in Case 1.

An anemia, regularly reported, was present in these cases but, contrary to usual reports, they presented a leukocytosis instead of a leukopenia; and while Case 1 presented a high polymorphonuclear count, the relative count in Case 2 was practically normal.

Joint pains were present in both cases thus conforming with the rule but the swellings commonly reported were not present.

A skin rash is not often referred to. Case 1 had it, Case 2 did not. A labial herpes seen in one of these cases and not in the other is not mentioned. Profuse sweats are always mentioned.

The spleen is regularly reported as enlarged. It could never be palpated in the two cases here reported and on percussion there was doubt, the intestinal flatulence having been an obstacle always. There were no enlarged lymphatics.

Prostration of a severity so great as to be alarming was noted and it seems to be a prominent symptom in most cases.

Recovery is a long drawn out experience.

The mortality of this disease is reported to be 2 per cent. Happily these two cases got well.

A disease is with us presenting a varied symptomatology which has not been fully described in any article or textbook. It requires close observation with numerous notations so that its various disguises do not lead us astray.

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## BRUCELLA ABORTUS INFECTION IN MAN (Undulant Fever)

A BRIEF HISTORICAL SKETCH\*

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By reason of the limitation of my practice to one of the older specialties in medicine I have never consciously come in clinical contact with a case of undulant fever. I shall therefore restrict my contribution in this symposium to the limits of an attempted brief historical sketch of the disease by rehearsing as best I can some facts, perhaps already familiar, culled from a meager acquaintance with the literature.

This I have done in view of the fact that the clinical manifestations and the diagnosis of the disease, as well as many other important phases of the subject, are to be adequately dealt with in the paper by Dr. Callaway which is to follow.

The disease now generally designated undulant fever and formerly known as Mediterranean fever, or more specifically called Malta fever, is now believed to be of ancient lineage. Hippocrates is said to have described certain cases of "Long continued fever, characterized by short apyrexial intervals, which lasted for as many as 120 days." These cases are now generally regarded as in all probability identical with what is now called undulant fever. Such a disease was long known as endemic on the island of Malta and the countries along the shores of the Mediterranean sea.

In 1887 Colonel Bruce, of the British Army medical staff, studying certain cases of atypical fever appearing in epidemic form in the British garrison at Malta, observed certain organisms in the spleen removed from a patient dead of this disease. The following year he succeeded in cultivating these organisms on agar and by inoculation produced a similar disease in monkeys. Bruce described the organisms as "small coccoid bodies," and named them "Micrococcus melitensis," which name thereafter became generally adopted. Ten years later (1897) Wright and Smith showed that the blood of patients sick with this disease would agglutinate the

\* Read before the Southwest Missouri Medical Association, Springfield, November 6, 1930.

organisms described by Bruce and they suggested this as a means of diagnosis.

In the year of this discovery (1897) Bang, of Copenhagen, described what he believed to be the infecting agent of a disease of cattle known as "contagious abortion." He noted that the organisms when observed in the infected tissues often appeared coccoid in form, but after isolation and further study he determined that he was dealing with what he called "a small bacillus," and the name "*Bacillus abortus*" was soon widely accepted.

Thus it came to pass that for more than twenty years succeeding the original studies of Bruce on "Malta fever," and Bang on "contagious abortion" of cattle, the two organisms, isolated, described and differently named by these two investigators, continued to be regarded as entirely unrelated species. As one writer has expressed it: "It was as if twin brothers had been adopted by different families and given different surnames and for twenty years no one recognized the similarities in the boys because they were seen at different times and in different places."

It was reserved for a woman bacteriologist, Miss Alice Evans, working in the laboratory of the United States Public Health Service in Washington, D. C., to point out in 1918 that these organisms were not only morphologically and culturally indistinguishable, but were serologically closely related if not identical. This observation was afterwards repeatedly confirmed and with this discovery began the newer knowledge of the disease.

A reclassification and renaming on the basis of Miss Evans' discovery being clearly indicated, Meyer, in 1920, recommended the formation of a new genus for these and related species of bacteria, and for the genus he proposed the name *Brucella* in honor of Colonel Bruce. His suggestion was immediately approved and the name *Brucella melitensis* became generally adopted. The previous distinctions, however, were permitted to remain by the recognition of different varieties of the organism. Thus the "*Micrococcus melitensis*" of Bruce became *Brucella melitensis*, and the "*Bacillus abortus*" of Bang became *Brucella abortus*. The latter variety was again subdivided into the bovine and porcine types.

In 1897 Captain Hughes, of the British Army medical staff, in view of the disease being frequently observed and reported in widely separated localities outside the island of Malta and the Mediterranean countries, proposed the name undulant fever to replace the hitherto geographic designation, Malta fever, and when later the Malta Branch of the British Medical Association sent a communication to

medical societies throughout the world asking that the term Malta fever be dropped because of the implied geographic limitations of the disease, we find the name undulant fever gradually adopted and coming into general use for what soon became regarded as a world-wide disease.

In 1904 a Mediterranean Fever Commission, appointed jointly under the British Admiralty and the Civil Government of Malta to investigate the disease, discovered, quite by accident it is said, that goats were the source of the disease then prevailing in that region. It also found that the organism leaves the body of the animal chiefly in the urine and that it was capable of existing for long periods outside of the body. The commission also discovered that the milk of many goats on the island would agglutinate the micrococcus described by Bruce and later isolated the germ from the milk of infected goats.

The natural habitat of the *Micrococcus melitensis* of Bruce, shown by that investigator to be the infecting agent in the disease, was thus generally regarded as being in goats. This belief appeared at the time to be confirmed by measures of prophylaxis along lines indicated by the etiology which resulted in a reduction of the disease among the British troops in Malta from 643 cases in 1905 to a single case in 1910. Furthermore, since the prohibition of the use of raw goat's milk resulted in the almost complete disappearance of the disease from the garrison at Malta, the impression grew and widely prevailed that the infection was spread only through the use of raw milk from these animals.

As a result, until recently, the presence of goats in a district as a possible source of the infection was the one circumstance that suggested the possibility of so-called Malta fever, and it was doubtless for this reason that the cases recognized for some time thereafter in America were only in goat raising districts.

The early cases reported in this country were, doubtless for this reason, confined to regions in the states of Arizona, New Mexico and Texas, where a total of 160 cases were reported. These cases, however, for reasons above stated, were considered as having their source chiefly if not solely in goats.

Infections with this type of fever were soon reported from parts of the United States where, with possibly an occasional exception, persons had had no contact with goats and had not used goat's products as food.

Although the fact that the causative organism of abortive disease in cattle might be pathogenic for man was suggested by Larson and Sedgwick as early as 1913, it was not until 1926 that Carpenter submitted the actual proof



of this close relationship. He reported two cases in which he had isolated *Brucella abortus* from the patients' blood and from the milk of the cow that furnished the milk consumed by the patients. Later he produced abortion in pregnant heifers by inoculating them with the organism recovered from the patients.

Bevan, of Rhodesia, in 1921, also called attention to cases of undulant fever probably related to cattle with contagious abortion. Four years later he reported a total of 35 cases. Since 1925 there have been numerous other reports from every country in Europe of cases of the disease unrelated to goats but related to cattle with contagious abortion.

The first case of Malta fever recognized as such in the United States was reported by Craig in 1903. Craig said the symptomatology varied so much that it was extremely difficult to describe accurately all the forms which this protean disease may assume. "It is generally a fever of long duration," he says, "subject to frequent relapses, presenting a most confusing and irregular temperature course, and accompanied by severe pain in the joints, constipation, profuse perspiration, and often followed by arthritic pains with or without swelling of the joints. An enlarged and tender spleen is very common."

There has been a wide variation in the number of cases recognized in different localities in the United States and this fact is worthy of notice. Prior to 1928, eight state laboratories had adopted the routine practice of examining for undulant fever all blood specimens sent in for an agglutination test for other diseases. As a result, up to the end of 1928, 560 cases had been recognized in these states, or an average of 70 cases per state. On the other hand, of fourteen state laboratories which examined for this infection on request only there was in all only a total of six cases recognized.

An outbreak of undulant fever at the Oregon State Tuberculosis Hospital in 1928 was found to have been caused by *Brucella abortus*. These are the first recorded cases in Oregon. In 45 specimens received at the Oregon Hygienic Laboratory for the Widal test, 5 specimens gave diagnostic agglutination with *B. abortus*. In a series of 422 Wassermann serums subjected to the *B. abortus* agglutination test in this laboratory, 28 gave complete agglutination in a dilution of 1:20; 7 in 1:40 and 3 in a dilution of 1:80. Bellinger and Levin emphasize that both laboratory and clinical evidence must be obtained to rule out disease with which it may be readily confused, and that laboratory evidence must be obtained to support the diagnosis in all cases. They believe that undulant fever is caused by the ingestion

of raw milk or cream from cattle infected with the organism causing contagious abortion. Since the organisms are destroyed when heated to 142 F. for fifteen minutes they believe that infection in man may be prevented by the proper pasteurization of milk.

During 1924 and 1925 in the United States, exclusive of Texas, Arizona and New Mexico, ten cases of undulant fever were recognized in six widely separated states, while during the year 1928 and the first five months of 1929 more than a thousand cases were diagnosed, and those had their origin in forty-two states. This increase in the recognition of the disease is thought to have been brought about by the growing awareness of its presence. It is now generally believed that the further spread of knowledge concerning the disease will undoubtedly result in the recognition of more and more cases.

608 Landers Bldg.

## BRUCELLIASIS

CLINICAL MANIFESTATIONS IN ANIMALS  
AND IN MAN\*

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Only in the last few years have we been thinking of undulant fever in connection with infectious abortion in cattle. There is no disease of live stock so prevalent and so well known among farmers, particularly in dairy regions, as contagious abortion. It has been known to exist in America since the latter part of the nineteenth century but the first reports of the *Bang bacillus* being found in this country were made in 1900. Its contagiousness has been recognized and effort has been made to control it but only recently has any concerted action been taken. It has caused more economic loss to the dairy and cattle industries than bovine tuberculosis. Other animals, hogs particularly, are known to become infected but the economic loss has not been great in these animals.

The incidence of abortion infection in cattle varies in different localities. To determine its presence complement fixation tests are used comparable to the Wassermann tests. Some 4000 cows in certified dairies in southern California were tested and 38 per cent showed a positive reaction. Los Angeles has a large raw milk business and several cases of undulant fever have been reported in that locality. In Pennsylvania, New York, Michigan and southern Ohio, it is estimated that from 40 to 70 per

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cent of the dairy herds are infected. These states have reported the largest number of cases of undulant fever. In Missouri, 20,000 cows in 1400 dairy herds have been tested and from 12 to 15 per cent found infected. It is possible that the lower incidence in this state may be due to less congestion of cattle in barns and small lots. Cattle in the dairy region of southern Missouri usually have ample range and the rate of incidence is low.

The economic loss to dairymen and stockmen is enormous. Graham, of the University of Illinois, estimated the loss per year for each positive reactor at \$5.4. Davis, of Nebraska, estimated a loss of \$107 per cow in pure bred herds through sterility, loss of calves, diminished milk flow and restriction of sales. White estimated the loss in milk production alone as \$44 per year for grade cows. We have in Missouri approximately one million dairy cows. Classifying them all as grade cows and estimating our loss on this basis it is found that dairymen in this state lose almost \$5,000,000 annually. When we consider that there are thousands of high testing pure bred cows in Missouri it will be seen that the actual loss is much greater. It represents a loss in Missouri greater than has been suffered from foot and mouth disease and bovine tuberculosis combined.

The signs that may indicate infection are not constant and are often indefinite. Abortion, retained placentae, sterility, prolonged uterine discharge, weak offspring, diminished flow of milk, mastitis in the female and orchitis and seminal vesiculitis in the male, are the common signs. In only about 50 per cent of the positive reactors are the germs found in the milk. They are most likely to be found in the period just before the cow goes dry, which is also the period before calving. Not over 50 per cent of positive reactors ever abort and some negative reactors, on a single test, pass the bacilli in the milk. Repeated tests show all such animals to be positive. Many cows just after and just before calving are found to be in this negative phase. One negative test does not always prove freedom from infection. Infected cows even though they do not show evidence of the disease may be just as menacing to a herd as cows which are known to abort. In either case the uterine discharge contains millions of the bacteria for from three to six weeks after calving. Only in rare instances do the germs persist in the genital discharge longer than six or eight weeks. After this period the bacteria seem to localize in the udder and adjacent lymphatic glands. They may remain practically quiescent in these parts until pregnancy again occurs when they may again cause an

endometritis. As long as udder infection persists it seems that it may be a focus for uterine infection. Cows known to have been infected and later ceased to eliminate the bacteria in the milk are not so likely to have a flare-up of the uterine infection during pregnancy.

Infection in cattle seems to take place through the digestive tract by contaminated food, drinking water and by licking the genitals of infected animals. Both pregnant and non-pregnant animals have been infected by feeding them known infected material. Bulls are subject to infection the same as cows and it is the consensus of opinion that they acquire the infection by mouth also. It is also thought that they do not transmit the disease by breeding. Calves seem to have a peculiar resistance to the infection. They may drink the infected milk, eat other contaminated food, pass the bacilli in the manure and urine and still show no clinical signs of the disease and remain negative reactors to the blood test. They remain free from systemic disease unless they are allowed to mingle with infected cattle after reaching sexual maturity.

It was six years after Miss Alice Evans, of the Hygienic Laboratory, reported the close relationship of the Bang bacillus and the *Bacillus melitensis* before a case of undulant fever was reported which was proved to be due to infection by the Bang bacillus. In 1924, Keefer discovered a case of undulant fever in Baltimore which was proved by blood culture to be caused by the *Bacillus abortus* of Bang. Two years before, however, Bevan, in South Africa, had mentioned the possible connection of undulant fever and contagious abortion in cattle, and Kennedy, in 1914, had noted that the milk of some cows would agglutinate the *Bacillus melitensis*.

After Keefer's case was reported other cases were discovered. In 1924 and 1925 ten cases of undulant fever were reported in the United States. During 1927, Carpenter inoculated ten healthy pregnant heifers with the organisms recovered from the blood of ten undulant fever patients and five of the heifers promptly aborted. This gave further stimulus to the work; more publicity was given the subject and 649 cases were reported in this country in 1928 and 1301 cases were reported in 1929. No cases were reported in Missouri in 1927 but 31 were reported in 1928 and 119 in 1929. There were probably other cases recognized but not reported as well as several cases not recognized.

The symptoms of undulant fever in man are quite variable. No one symptom is constantly present. The prolonged fever, which may be high or low, irregular or regular, intermittent, remittent or undulating, is the most constant



finding. Other symptoms, such as headache, backache, joint pains, muscle pains, weakness and loss of appetite might well accompany any systemic infection. Chills, or chilly sensations, followed by a fever and then sweating, are fairly common. The sweating is usually profuse, has a sour odor and generally comes on after midnight. There may be abdominal pain, pains through the chest, pains referable to the genital system, particularly the testicle or ovary, and they may be mild or severe. Nausea, vomiting and diarrhea are infrequent but constipation is common. Some patients have no particular complaint except that they "just don't feel good."

The physical signs of the disease are few. A tender and often palpable spleen may be found. The pulse usually runs parallel with the fever. The ordinary laboratory procedures reveal nothing that might not well be explained by some other infection. There is, however, in many instances an increased percentage of small lymphocytes in the blood. The duration of the disease is seldom under ten weeks and it may last for months or even a few years. Remissions may occur, lasting from a few days to a few weeks, and then the symptoms of infection may reappear in a lighter or severer form.

The diseases most often confused with undulant fever are influenza, typhoid, malaria, tuberculosis, endocarditis and acute arthritis. Sometimes the abdominal symptoms are so severe that acute surgical conditions are suspected, such as appendicitis and cholecystitis. The severe back pains sometimes make one think of perirenal abscess, renal stone or spinal caries. The disease should be considered in any case of fever, chills, sweats and body pains unless obviously ruled out by physical or laboratory findings.

The laboratory is essential in definitely establishing the diagnosis but it should not give one the first thought of this diagnosis. Positive blood cultures make an absolutely positive diagnosis. Complement fixation tests and agglutination tests are dependable, although a few cases have been reported with positive blood cultures but negative fixation and agglutination tests. Recent reports indicate that the intradermal injection of heat-killed *abortus* bacteria may become a valuable diagnostic aid.

The prognosis insofar as life is concerned is fairly good. The mortality rate runs from two to four per cent. The prolonged illness makes the disease of serious import to the patient.

Treatment is largely symptomatic. Laxatives, sedatives and antipyretics should be used as needed. Various remedies have been tried hoping to find a specific. One patient may

seemingly be helped by a particular therapeutic procedure and another receive no benefit from it. Vaccines, mercurochrome and acriflavine have been used with varying results. At present, vaccines are looked upon favorably by most of the physicians who have used them.

In one patient upon whom I used a mixed bovine-porcine vaccine the course was definitely altered upon two occasions. This patient became ill in October, 1929, and had fever daily until the vaccine was used in January, 1930. His reactions to the vaccine were so severe that a full course was not given. Following the administration of the vaccine he had an afebrile period which lasted three weeks and then he began having a little fever each afternoon. More vaccine was administered with severe reactions, followed by another afebrile period of three weeks. He then began having a little fever and this continued almost daily for a month, when he developed a severe follicular tonsillitis with chills and high fever. This lasted about five days and since then he has been free from fever.

Another patient upon whom I used the vaccine in doses four times as large as used in the first case mentioned, had no reaction from the vaccine but seemed to improve for about two weeks after its administration. A third patient has had no particular treatment except rest in bed and seems to be doing as well as the others.

Just how the human race becomes infected with undulant fever is not known in full. It has been definitely proved that it may be contracted by drinking milk from infected goats. Whether the same holds true for infection with the bovine strain may not be definitely stated but the circumstances make it very presumptive. Evans reported twenty cases that she studied and eight of them were undoubtedly due to drinking infected milk. The other twelve may have been so infected but had other possible sources of infection. Most of the cases reported by other investigators were patients who had been users of raw milk or other unpasteurized dairy products. King and Caldwell's report of several cases at the Metropolitan Life Insurance Company's sanatorium in New York certainly suggests to the reader no other possible source of infection. When undulant fever was discovered at the sanatorium in 1926 it was found that one third of the cows supplying the milk were infected with contagious abortion. During a two-year period they found 91 patients whose blood was positive by agglutination tests for undulant fever. During an eight-month period that the herd was free from infection no new cases appeared. A new case was then found and a check-up on the

cows showed that one cow in the herd supplying milk was infected. Simpson, of Dayton, Ohio, has studied 90 cases. All were consumers of unpasteurized dairy products and there was no evidence of goat or swine origin. Carpenter and King studied 155 cases and found 70 per cent were users of raw milk and 7 per cent had possible connection with hogs. Kristensen and Holm in a study of 500 cases in Denmark considered the majority of the cases not due to the ingestion of contaminated milk.

Hardy, of Iowa, found the rate of incidence of the disease among packing house employees was 287 per 100,000; on farms the rate was 11.4 per 100,000 and in towns under 5,000 population the rate was 8 per 100,000. He also found that on the farms 9 cases were found in men to one in women. Children seldom contract the disease but even babies may have it. Kohlbry, of Duluth, reported a case in a baby one year old. Of 150 cases studied by Bierring in Iowa 108 were in farmers and stockmen or members of their families. It is seldom that more than one member in a household contracts the disease even though they all may be using contaminated milk. Institutions having a local milk supply from badly infected herds have had a low morbidity rate. There has been no evidence of man to man infection.

These facts indicate that the human race has a high degree of resistance to the abortion bacillus. They also indicate that there are methods of contracting the disease other than the use of raw milk and milk products. Hardy, of Iowa, has recently shown that guinea pigs may be inoculated through skin abrasions. Because of the prevalence of the disease in laboratory workers, veterinarians, packing house employees and stockmen, infection through skin abrasions as well as hand and mouth infection must be considered.

Control of undulant fever must eventually be brought about through control of contagious abortion in cattle, hogs and goats. This will be no small task and will require years to accomplish it. The first step in this movement should be to restrict the disease to farms where it already exists. A stockman whose herd is free from infection should not purchase animals that do not have a negative blood test. Some twenty-six states have laws governing the sale of infected cattle. Missouri has no law on this subject.

In herds that are already infected the non-infected cattle must be separated from the infected ones. To sell all the infected cattle might be too big an economic loss but if they are kept on the farm they should be in quarantine. It is seldom if ever that a positive reactor becomes negative to the fixation blood test.

Some experienced stockmen believe that some cows do clear up from their active infection and cease to be carriers of the disease and a few have thought that refusing to breed infected animals for two or three years enabled them to overcome the infection. Vaccines have been used in many herds with disappointing results. No drugs seem to change the course of the disease.

Until infection in domestic animals is controlled the milk and cream from infected herds and from all nontested herds should be pasteurized. Evidence against raw milk may be largely circumstantial but until proved negative it should be considered as one of the avenues of infection. Stockmen and dairymen know the economic importance of this disease in cattle. They should also know the dangers of spreading the infection to the human race, to themselves, their families and to their customers.

Smith Bldg.

## PRIMARY CARCINOMA AND CARCINOID OF THE APPENDIX\*

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AND

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In a review of the literature on carcinoma of the appendix one is impressed with the state of confusion regarding the classification of primary epithelial neoplasms of this organ, and surprised at the laxity in differentiating its two most common tumors. One growth possesses the malignant potentialities of carcinoma occurring in the cecum and colon. The other, which is by far the more common, clinically, nearly always behaves as a benign tumor. Consequently, the reliability of statistical reports concerning the relative benignity, prognosis, age, incidence, etc., under the general caption of "Appendiceal Carcinoma," is subject to question.

Of the two types of appendiceal tumor under discussion, the more common one is seldom diagnosed before operation. It is usually located in the tip and is nearly always clinically benign. The increasing number of cases reported is the result of routine histological examinations, and nearly all observers find the predominating type associated with an obliterating appendix.

### HISTORICAL

Carcinoma of the appendix was first empha-

\* From the Surgical and Pathological Service of Research Hospital, Kansas City, Mo.



sized in 1903 by Elting<sup>1</sup> and Moschkowitz.<sup>2</sup> Elting in his article gives historical precedence as follows: "Merling reported a case of carcinoma of the appendix in 1838, Prus a case in 1865, Rokitsansky four cases in 1867, Kalaczed a case in 1875, Leichtenstern three cases in 1876, Bierhoff a case in 1880," etc.

#### OCCURRENCE

In Reiman's<sup>3</sup> reported series of 13,151 surgical appendices, 17, or about 0.13 per cent, were diagnosed histologically as carcinomatous. In another series of 8,039 there were forty malignant appendices (0.49 per cent). In 5,000 appendices studied by MacCarty and McGrath,<sup>4</sup> one in 225 was carcinomatous. Of 15,481 tumors studied by McWilliams,<sup>5</sup> 7,878 were carcinomas and of these none were appendiceal in origin. Considering most of the available data, carcinoma occurs in 0.2 to 0.5 per cent of all surgical appendices and comprises less than 0.5 per cent of all intestinal carcinomas.

#### AGE

In 300 cases reported by Boyer<sup>6</sup> the majority of cases occurred between the ages of twenty and forty. In individual series reported by McKenty,<sup>7</sup> Detrich,<sup>8</sup> and Baldauf,<sup>9</sup> a similar age incidence was noted. The youngest case of carcinoma of the appendix was reported in a child five years old (MacCarty and McGrath<sup>4</sup>), the oldest case was ninety-two years old. (Kudo<sup>10</sup>.)

#### SEX

According to statistics, the incidence of carcinoma of the appendix is slightly greater in females than in males. Reiman<sup>3</sup> found that 75 per cent of the cases in his series were in females, while another series reported by Deaver<sup>11</sup> showed 62 per cent occurring in males. We know of no good explanation, anatomical or biological, why one sex should be more affected than the other.

#### SYMPTOMS

The onset of symptoms is most insidious. Kelly<sup>12</sup> reports a case that had been in poor health nine years. In the cases reported by MacCarty and McGrath<sup>4</sup> the average duration of symptoms was 3.3 years. There is no characteristic symptom-complex. Pain is the most predominant symptom, usually located in the right iliac region and may be referred to the epigastrium, umbilical region, or to the whole right side.

Acute appendicitis is suggested by the epigastric pain when associated with nausea and vomiting. Some cases have flatulence with attacks of diarrhea alternating with obstipation which simulates intestinal malignancy. Shafer<sup>13</sup>

reports a case that had pain in the right lower quadrant, distention, tenderness, rigidity, chills and fever. When the tumor has extended beyond the appendix, presence of a mass, muscular rigidity, and temperature suggest an appendiceal abscess. The majority of cases are symptomless at the time of removal.

Mosse and Daunic<sup>14</sup> found an extensive carcinoma of the appendix in a woman who died of heart disease and who had no symptoms referable to the appendix. Whipman,<sup>15</sup> Grünbaum,<sup>16</sup> and others report similar findings. In our two cases, symptoms were referable to the appendix.

#### REPORT OF CASES

Case 1. H. S., white male, aged 49, gave history of pain in the right lower abdominal quadrant, nausea and vomiting, beginning one week before admission to the hospital. Confusing the acute symptoms was a history of obstipation alternating with diarrhea covering a considerable period of time. His first similar attack was three years ago.

He was admitted to the hospital with a temperature of 101 degrees F. and pulse of 90. Looked sick; tongue was dry. The abdomen was distended. There was a mass in the right lower quadrant with rigidity of the muscles in that region. The mass was also palpable through the rectum. General physical examination otherwise negative.

The blood count was, red cells 3,680,000, white cells 13,100, polymorphonuclears 78 per cent, large lymphocytes 2 per cent, small lymphocytes 20 per cent. The urinalysis was negative except for a slight trace of albumin, and 2 to 4 pus cells per high power field. The blood chemistry was N. P. N. 34.8, uric acid 4.31, creatinine 1.7, sugar 91.3 mgs. per 100 c.c. blood, chlorides (as sodium chloride) 3.6 gms. per liter of blood.

The gastro-intestinal roentgen ray examination showed distention of the lower small intestines, indicative of a partially obstructive lesion in the

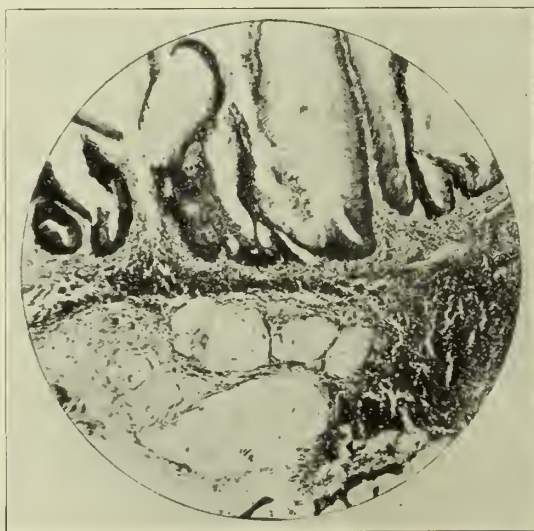


Fig. 1 Case 1. Section through wall including part of mucosa, muscularis mucosa and submucosa. Large hyperplastic mucosal epithelial cells secreting excessive mucus are seen. In the submucosa are irregular nests of tumor cells the detail of which is lost in their mucoid secretion. (X 110)

terminal ileum. The appendix was not visualized and there was no deformity of the cecum. A barium enema showed a normal colon. At operation, the appendix was found pointing toward the pelvis into a well walled-off appendiceal mucoid abscess. This mucoid abscess was opened and emptied by suction. The distal half of the appendix was practically destroyed. The proximal half was removed, stump inverted, three cigaret drains inserted into the abscess cavity, and the wound closed to the drains.

**Pathological Report.** The material consists of a portion of an appendix which measures 3.5 cm. in length and ranges from 1 to 1.5 cm. in diameter. The distal part of the appendix is missing. So far as we can tell grossly, the specimen may represent the proximal third or even proximal half of the appendix. External surface is covered with dense, reddish-pink fibrous adhesions. The proximal portion of the specimen presents a patent lumen with normal mucosa, the more distal portion shows thickening of the wall and the lumen filled with a gelatinous, yellowish-pink mucoid material which is tenaciously adherent to what appears grossly as a hyperplastic mucosa.

**Microscopic Examination.** In some sections the mucous glands are huge; the epithelium is hyperplastic. In the submucosa there are areas of mucoid degeneration, and some of these are fairly well lined with epithelial cells. In other areas, epithelial cells lie free in the mucus. Similar areas but less numerous are found in the muscularis and subperitoneal coats.

**Diagnosis.** Mucoid carcinoma of appendix.

The interesting points of this case were: The preoperative diagnosis was malignancy of the lower ileum, or appendiceal abscess; the diagnosis of malignancy was considered from roentgen ray findings and the history of obstipation alternating with diarrhea; the diagnosis of appendiceal abscess was suspected on account of the recent history of pain in the right lower quadrant, nausea, vomiting, physical findings



Fig. 3 Case 2. Normal glandular mucosa to right with marked hyperplastic changes to left, the identity of mucosa being lost. Isolated irregular stellate nests of epithelial cells are seen in the submucosa.

suggesting a peritonitis, a palpable mass in the pelvis, leukocytosis and a temperature of 101 F. The possible duration of the growth is three years. The operation was performed on June 13, 1929, and at the present date the patient is doing farm work with no suggestion of recurrence.

**Case 2.** R. O., white male, aged 22, was admitted to the hospital January 18, 1927, with a history of pain that started in the epigastrium, later becoming generalized throughout the abdomen and finally localizing in the right lower quadrant. Tender over McBurney's point, had muscular rigidity, and kept his right knee flexed. Physical examination was otherwise negative. Temperature on admission was 97.2 F., pulse 72, respiration 16.

**Laboratory Findings.**—Hemoglobin 85 per cent, red cells 4,800,000, white cells 17,400, polymorphonuclears 92 per cent, large lymphocytes 3 per cent, small lymphocytes 5 per cent. Wassermann negative. Urine negative.

A McBurney muscle splitting incision was done, the appendix was removed and the wound closed with no drainage. The appendix was enlarged, elongated, short meso-appendix, and the vessels injected. The cecum was covered with a Jackson membrane.

**Pathological Report.** Specimen consists of an appendix which measures 7 cm. in length and from 5 to 8 mm. in diameter. The external surface shows considerable hemorrhagic discoloration and the wall is quite thin. The mucous membrane appears degenerated.

**Microscopic Examination.** Sections show no thickening of the wall. The mucosa shows a few irregular glandular structures; also a diffuse epithelial hyperplasia in which the cells are rounded or polyhedral and the nuclei hyperchromatic. In the submucosa, similar cells are seen, some arranged in isolated nests. The muscularis is fibrotic, the serosal vessels are injected.

**Diagnosis.** Carcinoid of the appendix.

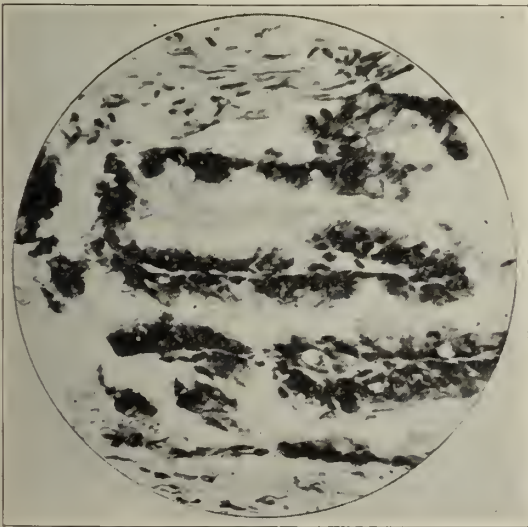


Fig. 2 Case 1. High power showing irregular gland-like structures deeply invading the muscularis. (X 500)





Fig. 4 Case 2. Higher magnification of isolated nests of epithelial cells in the submucosa. (X 500)

The interesting points in this case were: Preliminary diagnosis of acute appendicitis, with history and physical findings that coincide; a leukocytosis of 17,000 but a normal temperature; the gross findings at operation did not confirm the preoperative diagnosis; the microscopic diagnosis was carcinoid of the appendix; patient made an uneventful recovery and left the hospital on the eleventh day; the diagnosis in this case would not have been made without a routine histological examination.

#### PATHOLOGY

In the appendix two rather distinct types of epithelial growths occur. These differ strikingly in gross appearance, histologically, and in clinical behavior. The more common type will be discussed first. This growth is usually small, quite often the size of a pea or less and occurs in the distal fourth or the tip of the appendix in 75 per cent of the cases. The peculiar location of this lesion frequently gives the appendix a bulbous appearance. One may easily overlook this small tumor and undoubtedly its incidence is greater than statistics indicate. Fully 75 per cent are not suspected until the organ is sectioned. The cut surface is often glistening white, mottled with yellow, due to deposits of lipoids in the thickened wall. The lumen is often obliterated and ulceration is rare. In its gross appearance it presents no diagnostic features as a rule and is often taken to be a subacute or chronically inflamed appendix. Histologically, it is composed of small polygonal or spheroidal epithelial cells which may occur as localized nests or strands in the mucosa and submucosa, or may even be seen infiltrating the muscularis. The nuclei are hyperchro-

matic but usually show no marked variation in size and mitosis is rarely seen.

There is much disagreement and confusion concerning the nature of this small spheroidal cell tumor. Most pathologists, however, consider it relatively benign while some refuse to ascribe to it any degree of malignancy whatever.

According to Kaufmann,<sup>17</sup> Milner believes this tumor to be a purely "inflammatory neoplasm" in which the proliferating endothelium of the lymph spaces imitates strands of carcinoma cells. Neugebauer<sup>18</sup> considers it an endothelioma, but this theory is shared by few. Toennissen and Saltykow suggest that these small tumor areas, sometimes seen in the wall of the appendix as well as in the walls of the intestines, are heterotopic cell complexes and may represent pancreatic cell nests or misplaced islets of Langerhans. Other observers with similar interpretations refer to such tumor nests, whether in the appendix or elsewhere in the small intestines, as hamartomas or choristomas (separated or displaced embryonal tumors). Burchardt<sup>17</sup> considers this tumor similar to basal cell carcinoma and refers to it as a basalioma, while Versé and Saayer<sup>19</sup> believe it to be a slowly growing carcinoma. Oberndorfer<sup>20</sup> shares the latter view and calls them "carcinoids," a term which has been accepted by many pathologists including Karsner,<sup>21</sup> Boyd,<sup>22</sup> and Lubarsch.<sup>23</sup> While there are objections to this term, we believe it has a practical application in surgical pathology as it more or less clearly distinguishes this relatively benign growth from a more rare adenocarcinoma of the appendix.

More recently Masson,<sup>24</sup> and according to

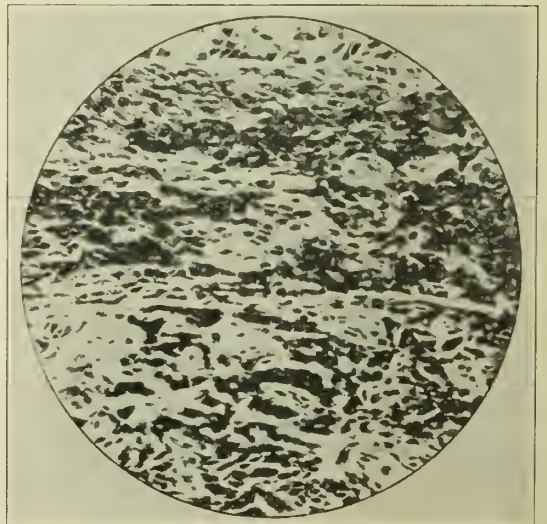


Fig. 5 Case 2. Higher magnification of the diffuse growth of epithelial cells in submucosa. (X 500)

Royster,<sup>25</sup> Von Rheren, and Forbus<sup>26</sup> have done much to establish the chromaffin system as the parent to the so-called carcinoids. As pointed out by Von Rheren, Kultschisky described cells in the base of Lieberkuhn's follicles which had basophilic nuclei, and cytoplasmic granules that showed a distinct affinity for both silver and chromium salts. Masson<sup>24</sup> regards the Kultschisky cells as endocrine or neural in nature and a part of the chromaffin system. He has demonstrated that these cells from a normal jejunum or normal appendix are able to bud off into the stroma of the mucous membrane where they enter the nerves of the mucous plexus and may migrate along these until arrested by an intersection or ganglion cell. They are first nongranular, then rapidly dedifferentiate into four types, neuroglial, ganglionic, glandular and intestinal, gradually acquiring the argentaffine granulation in the process. Forbus,<sup>26</sup> Stewart and Taylor,<sup>27</sup> and others have made use of the argentophilic reaction in identifying secondary or metastatic nodules arising from the chromaffin system; also in determining the chromaffin nature of primary tumors in the appendix or intestines.

Of several hundred carcinoid tumors recorded, Stewart and Taylor<sup>27</sup> were able to find but eighteen cases, including one of their own, in which metastasis could be proved. Of these, nine were primary in the small intestines. In their own case there were large secondary peritoneal growths in the pelvis, the removal of which along with the removal of the appendix apparently effected a cure, the patient being well ten years later. There are cases on record, according to Stewart and Taylor,<sup>30</sup> in which widespread metastasis took place involving lymph nodes, liver, and pleura. In some instances the secondary growths have reproduced more or less faithfully the structures of the primary growth, while in others there was evidence that the tumor had assumed more malignant characters, mitotic figures and diminution of argentaffine granulation.

In the cases of Dukes and Mummery<sup>28</sup> from a primary carcinoid of the ileum, there were secondary growths on the peritoneal surface of the liver, on the surface of the cecum, and in regional lymph nodes. The primary and secondary growths were removed at operation and sections from all gave the argentaffine reaction. The patient, according to the authors, recovered from the operation but nothing is stated concerning the subsequent course.

While there are nineteen cases of carcinoid tumors in which metastasis has definitely occurred, there are no cases in which death has been ascribed to the primary tumor or its secondary involvement in the series studied in this paper.

The less common type is usually referred to as a "pure" glandular carcinoma and presents the same characteristics, as regards growth and metastasis, as adenocarcinomas occurring elsewhere in the gastro-intestinal tract, mocking in particular carcinoma of the cecum the metastasis of which is usually late and rarely widespread. The glandular type most always occurs in the proximal half of the appendix. It is more rapid in its growth and has been known to attain the size of a large grape-fruit. In contrast to the carcinoids, this tumor occurs late in life as a rule. It constitutes a very small percentage of tumors of the appendix.

Boyd has been credited with the statement that "the typical carcinoma of the appendix has never metastasized nor caused the death of the patient." We assume that Boyd restricted his designation of "typical carcinoma of the appendix" to the "carcinoid," as this type constitutes over 90 per cent of the primary epithelial tumors of the appendix.

While there appears to be a somewhat current opinion that "carcinoma" of the appendix is a benign tumor, we believe this is the result of confusing the two types, or rather due to a failure to distinguish between them.

In our review of the literature we are surprised in many instances, where considerable data are presented, to note the failure to distinguish between these two growths. Inasmuch as they are so widely different as regards their growth propensities, as well as capacity to metastasize, we believe that for the sake of statistical accuracy and for the sake of practical application as regards prognosis, the so-called "carcinoids" should not be classed unreservedly under the caption of "carcinoma" of the appendix.

#### SUMMARY

1. A study has been made concerning the relative incidence and malignancy of epithelial tumors of the appendix.
2. Two cases, one representing a typical carcinoid and the other a primary adenocarcinoma (mucoïd) of the appendix with clinical and pathological data, are presented.
3. It would seem, from the more recent work of Masson, Von Rheren, and Forbus, that the chromaffin nature of "carcinoids" is fairly well established.
4. The capacity of carcinoids of the appendix to metastasize is recorded no less than nine times. Therefore, carcinoids, or chromaffin tumors, are relatively but not absolutely benign.

1332 Professional Bldg.

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## ACUTE PHOSPHORUS POISONING

### REPORT OF A CASE WITH RECOVERY

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AND

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A case recently under our care serves to bring out the danger of the ordinary commercial rodent exterminators.

#### REPORT OF CASE

On February 1, 1931, a man, aged 23, farmer, married, was admitted to St. Joseph's Hospital, St. Charles, Missouri. Chief complaints were pains throughout the entire lower abdomen, passage of dark urine, no appetite.

Two days previously he had become ill suddenly with chilling sensations over entire body followed by fever. Cramp-like pains across the lower abdomen were present. He had another chilly sensation the following day and griping persisted. The urine then began to appear dark in color. Had total anorexia since January 31, 1931. A foul taste in his mouth three days preceding the initial chill, remained. Eructated, was nauseated but did not vomit. There was a sense of fullness in the epigastrium. Stools were yellow in color, never white. The past and family histories were irrelevant.

Physical examination showed a well nourished male lying upon his abdomen in moderate pain due to abdominal cramps. Mental condition normal. Skin not jaundiced. Temperature 100, pulse 66, respirations 22. No changes in head, neck, or chest. Blood pressure 110/80. The abdomen was soft, the liver enlarged forming a distinct mass beneath the costal arch upon the right side and very tender to touch. The spleen was not palpable. No other masses, rigidity, or tenderness found. Knee jerks normal and equal. Right hand had been amputated at the wrist some years ago.

Laboratory work at this time revealed a leukocyte count of 5,000 and a red cell count of 5,600,000 with hemoglobin 75 per cent. Urine amber in color, acid in reaction, specific gravity 1.025, small amount of albumin, a few hyaline casts, and a large amount of bile.

The next day a slight icteric tinge to his skin appeared and he vomited a clear fluid several times that day. He could not retain even water. A tentative diagnosis of acute catarrhal jaundice was made and iodeikon (intravenous) examination showed no shadow.

On February 4 the jaundice was well marked. The patient was very ill with considerable pain in right upper quadrant and epigastrium. He vomited a clear straw-colored fluid all day. Nothing was retained in the stomach. The icterus index (method of Bernhard and Maue) was 144 (normal 3.6). Urine examination did not differ from that of entrance examination. The liver was still large and very tender.

On February 5 we were dissatisfied with our tentative diagnosis. Asking the patient and his wife about matches and rat poisoning we received this information: On January 16 the patient arose at night to set rat poison. This was "Electric Rat and Roach Poison." He smeared it upon crackers with his only hand, and then returned to bed after washing his hand as best he could. (Bear in mind he had but one hand.) He noticed his hand still glowed in the dark after the washing. No other poison had been handled.

Two possibilities presented themselves. Either the phosphorus was carried under the finger-nails of the patient (he had no way of cleaning these) and later dropped into his food or the phosphorus penetrated the skin, as mentioned by Sir Humphry Rolleston in "Oxford Medicine" as a means of fatal poisoning.

On February 6 the patient was very ill with emesis of clear fluid throughout the day. The pains in the abdomen were still present. The urine was very scanty in amount and highly colored with four plus bile present. The leukocyte count was 6,250. The jaundice was a greenish-yellow color.

February 7 found the patient in the same condition as on the previous day. On February 8 he suffered a convulsion followed fifteen minutes later by a second one. Pulse rate 60, stools yellow, occasionally putty colored. The patient had been con-

stipated throughout the illness. The liver was smaller but still tender.

On February 9 the entire output of urine was but 1000 c.c. though the intake had been six times this amount by hypodermoclysis. The icterus index was now 30. Edema of the eyelids appeared. The patient was now almost bronze in color. The liver mass in the right upper quadrant had disappeared and there was a diminution in liver dullness. The spleen was barely palpable below the costal margin.

On February 10 the patient had a sudden hemorrhage from the nose of 1000 c.c. of blood. The nose was packed and a tampon placed in the nasopharynx. There was oozing from around the packing for several days afterward.

On February 11 the patient's appetite began to improve. Since the last of January he had eaten nothing. He had a chilly sensation followed by a temperature of 102 degrees.

No bile was determined in his urine from this day on. No further rise in temperature was noted. The jaundice slowly faded and was almost gone in four days. His appetite returned to normal. The edema of the eyelids remained. The urine became normal. There was no further oozing from the nose. The liver could not be palpated after February 9 and by February 15 it reached just to the costal arch by percussion.

On February 18 we allowed the patient to return to his home. At present he has been home for two weeks and is steadily improving. We believe there will be no permanent ill effects from this poisoning.

Our treatment of this case was entirely symptomatic. We received the patient too late for stomach lavage which is a most excellent procedure in the early stages, especially in cases of suicidal attempts and children. Both of these types invariably take large doses of the poison.

We maintained our patient on large daily amounts of hypodermoclysis of saline and proctoclysis of sodium bicarbonate and glucose. Intravenous glucose was also given daily. To offset the bleeding from the mucous membranes, calcium lactate dram  $\frac{1}{2}$  were given three times a day and upon the day of the hemorrhage 2 c.c. of lapenta were given. The nose was kept packed for several days.

Cushny has stated that it takes only from one to two grains of the element phosphorus to kill an adult. We feel this patient may have had less than one grain of the element.

McLean, MacDonald and Sullivan, in their case which was very thoroughly studied, state that the usual rat poisons contain 1.19 per cent of the element phosphorus.

In many respects this case resembled one of acute yellow atrophy. However, the failure of appearance of the grave symptoms of acute yellow atrophy, such as delirium, coma, and death, mark it as phosphorus poisoning.

McPhedran, writing in Sajous' *Analytical Cyclopaedia of Practical Medicine*, says "the

disease (acute yellow atrophy) is so fatal that recovery almost implies a mistake in diagnosis."

The liver is not palpable in acute yellow atrophy and it was present in our case; also the presence of nephritis as evidenced by the edema of the lids and urinary findings indicate poisoning.

It can be seen from this case that the amount of phosphorus taken was very small. So the menace to the community of the common rat poisons is set forth in this article. Bearing in mind the almost 100 per cent mortality rate in acute phosphorus poisoning, we should hesitate to allow this indiscriminate use of rat poisons.

We are greatly obliged to Dr. O. S. Jones, intern at St. Joseph's Hospital, for his assistance in preparing this article.

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## DIABETES MELLITUS

### REPORT OF CASES\*

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When I selected the subject of diabetes mellitus as the topic upon which to address you I did so for two reasons: first, because I realized its great importance in the general practice of medicine; second, because I thought our society had been neglecting the consideration of this condition.

I felt quite sure that it would be reasonably easy to make a report on this subject so I sent the title to the corresponding secretary, got down my books and all that I could borrow and began reading. Now I am utterly bewildered. I found that practically everybody told what someone else believed

\* Read before the Southeast Missouri Medical Association, Poplar Bluff, Missouri, October 7, 1930.



from his experiments, and those experiments have been going on for ages. Much has been accomplished but much is yet undone. Now I realize why our society has neglected this important subject, and we are probably not an exception.

I might here mention the origin of the term "diabetes mellitus," the history of which is somewhat obscure. For many centuries the malady was probably termed with the one word "diabetes," from a Greek word meaning "a siphoning or passing through." When it was discovered that there were two distinctly separate types of diabetes, one type having sugar in the urine the other without sugar though very similar in clinical aspects, the term "mellitus," meaning "honey," was added to the one, and "insipidus," meaning "not sensed by taste," was added to the other as a means of differentiating the two types. The differential diagnosis was made by the sense of taste, the only means known until the middle of the nineteenth century.

Diabetes mellitus is a chronic disorder of metabolism involving primarily and principally the carbohydrates. It is characterized clinically by glycosuria, hyperglycemia, polydipsia, polyuria, usually increased appetite with loss of weight, and a tendency to acid intoxication resulting in coma and if untreated in death.

Diabetes was referred to in the writings of Greek physicians, the pioneers of modern medicine, nineteen hundred years ago. Glycosuria was incidentally discovered by the pioneers of scientific medicine by the taste and sticky feel several hundreds of years ago, and hyperglycemia was noted by Dobson in 1775. It was in the middle of the nineteenth century that Fehling discovered a fairly reliable and scientific method of testing for glycosuria, the copper sulphate reducing test. One hundred thirty-eight years after Dobson noted the presence of sugar in the blood, that is in 1913, Lewis and Benedict introduced the colorimetric method of blood sugar estimation, and not until then was the world able to study the facts of carbohydrate metabolism of blood sugar analysis.

With the knowledge that diabetes mellitus was associated with glycosuria and hyperglycemia and methods of ascertaining this information the diagnosis of diabetes was easy. This knowledge was the result of victories obtained in a series of scientific battles covering many centuries.

Little progress in the treatment of diabetes, however, has been made since the dark ages when diet and empiricism were re-

sorted to. The pioneers obtained remissions in the severity of the disease in many cases due no doubt more to the dietetic treatment than to the empiric remedies and century after century passed with no great progress in the treatment of the malady.

Sometime during the nineteenth century Langerhans discovered certain small secreting cells in the pancreas which were given the name "islands of Langerhans." It was subsequently discovered that these cells had been destroyed in persons who died from diabetes.

A temporary glycosuria and hyperglycemia were produced in rabbits by Claude Bernard in 1848 by puncturing the floor of the fourth ventricle. It was noted that head injuries often developed a temporary glycosuria. Excitement often causes a glycosuria, as in members of football teams during big games, even including some members held in reserve who did not play.

The extirpation of the pancreas of dogs was done by von Mering and Minkowski in 1890 and these dogs at once became diabetic, so it was concluded that the origin of this age-old malady had its seat in the pancreas.

The etiology of diabetes has not been determined but several factors generally associated with its onset in all probability exert a definite predisposing influence. The most important of these is obesity. Joslin made an analysis of 1000 cases and found 10 per cent to be underweight ordinarily, 15 per cent of normal weight and 75 per cent overweight. Obesity is due ordinarily to overeating or lack of exercise, or both, and since 75 per cent of diabetics are of the obese type we feel justified in classing obesity as a strongly probable etiologic factor. Nervous influences, as pointed out in football team players held in reserve, play an important role. Heredity probably is not a factor in diabetes though we have reports of several persons in one family having the disease. Men are said to be more susceptible than women but I have seen diabetes in women in a ratio of about 3 to 1 and attributed it to the more sedentary habits of the women. Although no age is exempt we usually observe the disease between ages 40 to 60 years.

The fact that the urine contains sugar or that there is a hyperglycemia does not confirm the diagnosis of diabetes. It may be a transient condition that will clear up in a few days under a restricted carbohydrate diet, but it should be looked upon with suspicion and watched from time to time. If the cardinal symptoms of diabetes develop and the sugar

output is confirmed by the laboratory the diagnosis is clear.

We find normally from 80 to 120 mgms. of sugar in 100 c.c. of blood, the amount being higher an hour or so after a heavy carbohydrate meal. If the amount runs considerably above normal a glycosuria follows and the number of mgms. of sugar in the blood at the time the urine begins to show sugar is considered the normal threshold for that individual. This threshold varies greatly in different persons and in one individual at different times, usually running around 170 mgms. per 100 c.c. of blood. If the threshold is considerably less one may have a considerable amount of glycosuria and not be classed as a diabetic. On the other hand, if his blood permeability or normal threshold is very high he may have a severe case of diabetes mellitus with all the diabetic symptoms while his urine is sugar free.

Here lies our reason for careful laboratory reports to ascertain the real condition of the patient and the diabetic even though not seriously ill should spend a few days in a hospital from time to time where the necessary laboratory procedures may be done and his condition checked. He is also taught the management of his diet, how to give his own insulin, what an insulin reaction is like, and numerous things the diabetic should know.

But merely diagnosing a condition as diabetes was not enough. The various empiric treatments had been total failures. The diabetic treatment was a drudgery and not satisfactory. Experiments continued. The successes and failures of former investigators were studied and the pioneers kept trying.

In 1922 two young men of the University of Toronto, Banting and Best, announced their discovery of insulin. They had extracted insulin from the islands of Langerhans in the ox. They then produced artificial diabetes in the dog by removing the pancreas then gave relief by injecting insulin. It was the greatest discovery in the treatment of diabetes that the world had ever seen and still is the greatest as it prolongs thousands of lives for indefinite periods of time. It was a new era in the treatment of diabetes.

Insulin is only a palliative treatment. It does not cure diabetes. No cure has been found. This was a sad disappointment to the world. But the discovery of insulin has enabled many thousands of people to go about their duties very much as though unafflicted and in a fairly good state of health, but with the constant necessity of receiving the hypodermic of insulin two or three times

a day and ever watchful of the diet, each one literally in bondage awaiting some intercurrent disease to carry him away.

Diabetes mellitus may be complicated with such conditions as acidosis, arteriosclerosis, carbuncles, furunculosis, pruritus, gangrene, and a number of other conditions. The final condition is diabetic coma. A patient with any one of these conditions should first be tested for sugar in the urine in order to rule out diabetes.

#### REPORT OF CASES

Case 1. Mr. N., aged 40, came to me with a history of frequent urination, increased appetite, increased thirst, polyuria day and night at least once an hour, the amount being over two gallons a day, loss of weight from 150 pounds to 119 pounds and loss of strength. Slight neuritis. Symptoms seemed to have come on more or less suddenly three or four months previously. Had been under treatment for two months previously without improvement. I made a diagnosis of diabetes mellitus, restricted his carbohydrates and gave him 20 units of insulin before breakfast and before supper daily. The improvement was astounding. He soon gained 16 pounds and was quite himself again. The urine never became sugar free. After about two months he heard that a certain doctor could cure him without the dreaded hypodermic so he left my care without comment. He died four months later. I am quite sure he left my care because I would not promise a permanent cure and could not give him temporary relief except by the use of the needle.

Case 2. Mrs. S. had been under my treatment for five or six years for neurosis. She had normal blood pressure, a tachycardia and occasional attacks of polyuria, day and night, urine decidedly low specific gravity. I never suspected sugar and made no test. She was about 45 years old, fairly well nourished and was gaining 3 pounds a year, which did not alarm me. Beginning to realize the importance of complete chemical urinalysis, I tested her urine for sugar and found it loaded. Restricted carbohydrate diet and insulin cleared the condition up after 3 or 4 weeks, but a few weeks of neglect will bring back the sugar. The neurosis remains in varying degrees. She is a neurotic and potential diabetic of a moderate degree of severity.

Case 3. Mrs. W., aged 48, obese, came to me for treatment for high blood pressure, which was around 210/120. Urine showed a heavy trace of sugar but cleared up on restricted diet without insulin and she remained sugar free as long as I saw her. The blood pressure remained practically the same regardless of treatment. She claimed to be much improved. She may not have been a true diabetic. Such cases should be looked upon with suspicion and a complete urinalysis be done from time to time, and a blood sugar estimation made if symptoms point strongly toward diabetes.

Case 4. Mrs. A., aged 45, obese, married, came to me for examination thinking she had contracted a "bad disease" from the laundry of the hired man, for whom she washed, on account of intense itching of the vulvae. Examination indicated no infection. Urinalysis showed the urine heavily loaded with sugar. On this and her general history I made a diagnosis of diabetes mellitus and



suggested a routine treatment of insulin and diet. She replied, "Oh, sure, I have diabetes and have had for seven years, but it don't hurt nothin'. But I've got to have somethin' done for this itchin'. If it is the Lord's will that I die with diabetes, I'm willin', but I can't stand this itchin' all of the time." She had pruritus vulvae of diabetic origin and was too ignorant to realize the proper treatment of the pruritus was to eliminate the cause.

Case 5. Mr. W., aged 59, well nourished, entered Christian Hospital, St. Louis, August 11, 1930, with a carbuncle larger than one's hand on back of neck and between the shoulders. He thought the cause was a bruise followed by a pimple which was scratched open and became infected. The infected mass was lanced at a doctor's office before entering the hospital but did not respond to treatment.

Family history essentially negative, past history negative except for having a toe amputated 3 or 4 years before due to blood poison. He responded slowly to questions as if cerebration were retarded, a defect I have noted in nearly all cases that I have examined. Urinalysis showed a slight trace of sugar but a diagnosis of diabetes was not made. Wassermann was negative. Patient did not improve. A week later a blood sugar estimation was made which showed 260 mgms. of sugar to the 100 c.c. of blood. Diabetic diet and insulin were started and after twelve days patient was able to return home. Subsequent blood sugar estimation showed rather high content though the urine was sugar free.

This was a case of carbunculosis due to diabetes in which the urine was almost sugar free with a marked hyperglycemia.

Case 6. Mr. C., aged 36, entered Christian Hospital, St. Louis, July 31, 1930, in a semiconscious state, look of extreme anxiety, pallor with flushed cheeks, peculiar empty feeling in stomach, temperature 97, pulse 134, respirations 40, severe pain about lower right costal margin. At first I suspected lobar pneumonia. Had a carbuncle of a few days' duration on nape of neck, gave a history of a thyroidectomy three and one half years ago and of diabetes developing six months later. He had formerly weighed 180 pounds but just before the thyroidectomy his weight had dropped to 120 and had since ranged around 140 to 145. He was extremely ill and I feared his death was but a matter of hours.

A diagnosis of diabetic acidosis was made by the physician in charge, who immediately ordered 30 grains of sodium bicarbonate in an ounce of peppermint water every hour and ten units of insulin every 2 hours until there was evidence of insulin shock. Five hundred c.c. of Ringer's solution and 500 c.c. of 5 per cent glucose solution with 30 units of insulin added were given at once intravenously. Next morning patient was sleeping and within 24 hours respiration and pulse were normal. He made an uneventful recovery, returning home a week later. The urine was sugar free though the blood still retained 232 mgms. of sugar to the 100 c.c. of blood.

I have reported these cases, which I have either attended or seen personally, to impress upon you the great importance of laboratory work and to illustrate some of the sequences of this dreaded malady.

#### CONCLUSIONS

1. Diabetes is a serious disease with many

complications all of which are more or less serious in their nature.

2. Diabetes has been recognized for ages as a grave malady and although the seat of the disease had been traced to the absence of the islands of Langerhans the true etiology has not been discovered.

3. A person whose urine is sugar free may have a severe case of diabetes.

4. A person may have a glycosuria and yet be nondiabetic.

5. Insulin has prolonged the lives of thousands of diabetics as a palliative remedy.

6. Insulin has never cured a case of diabetes and will never do so. No cure has yet been found.

7. Any of the conditions that may complicate diabetes mellitus should arouse a suspicion of sugar in the urine and blood analysis should be made before ruling out diabetes.

### SPINAL ANESTHESIA IN ACUTE ABDOMINAL CONDITIONS\*

L. RAY ELLARS, M.D.

LOUISVILLE, KY.

I desire to thank you for the privilege of addressing your Society. Being a guest of your president, Dr. W. O. Fischer, who is a classmate of mine, I am more than pleased to be with you.

I was chief house surgeon of the Louisville City Hospital in Louisville, Kentucky, for eight years, and am now located in that city. It is my good fortune to be the surgeon for six of the railroads entering our city and, without egotism on my part, I am free to admit that I handle a large number of fracture cases and also cases of acute abdominal conditions. Since my arrival in this city I have met a number of the older members of this Society, all of whom admit that Kentucky and West Virginia settled this state. Inasmuch as this is true, I feel that as a native Kentuckian I have it on you and I am now going to tell you how it is done.

Spinal anesthesia, in my opinion, is one of the greatest advances we have made since the advent of anesthesia approximately in the year 1844. With this form of anesthesia we can handle difficult cases in a more scientific manner than previously and at the same time materially reduce the mortality.

You have heard a great deal about the blood pressure being lowered after the administration of spinal anesthesia and the at-

\* Read at the meeting of the Boone County Medical Society, Columbia (Mo.), December 2, 1930.

tendant dangers, but the blood pressure means nothing. Give the dose that is necessary for the weight of the patient; the required amount of spinal fluid to obtain the degree of anesthesia desired; inject it between the second and third lumbar vertebrae, place the patient in the Trendelenberg position so that a horizontal line drawn from the anterior-superior spine will completely cover the brain with blood, then go ahead with your work.

Spinal anesthesia when given as I have indicated is successful in 99 per cent of cases, and gives a complete anesthesia for any operative condition from and including the neck down. The injection is made between the bodies of the second and third lumbar vertebrae. The degree of anesthesia is governed by the amount of neocaine used plus the amount of spinal fluid in which the neocaine is dissolved; the more spinal fluid used the higher the level of anesthesia. The only complication that I have had in over 700 cases is an occasional headache. This is relieved by the injection of periodic doses of pituitrin or, if this fails, the intravenous injection of 2 c.c. of a saturated solution of magnesium sulphate.

The next agent that I would recommend for the armamentarium of every surgeon is the glass drainage tube for cases of acute peritonitis. This tube is of a caliber about the size of one's little finger, is about twelve inches long and is perforated by several holes in the lower three inches. After operating on a case of acute peritonitis this glass tube is placed through a counter stab opening into the lowermost part of the pelvis. Every fifteen minutes following operation the tube is aspirated by means of a small rubber tube inserted into the bottom of the glass tube and attached to a bulb syringe. I have treated numerous cases by this method and in one case aspirated 32 ounces of pus within the first 24 hours after operation. Needless to say, the patient should be placed in Fowler's position and all other operative measures instituted. This tube should be removed after 24 to 36 hours as a longer stay is useless.

The last measure that I would advocate but by no means the least is venoclysis, a method by which any quantity of saline, or glucose in saline, may be given. This method was originated by Professor George A. Hendon, of Louisville, Kentucky. In my opinion it has reduced the mortality of the usually fatal cases of peritonitis at least 50 per cent. This apparatus (figure 1) con-

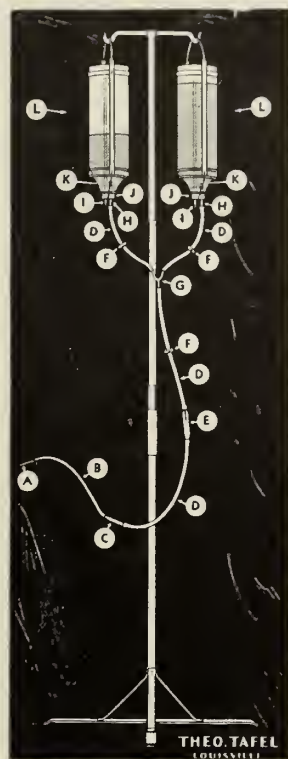


Fig. 1.

sists of two quart size thermos bottles suspended by a suitable stand connected to a common tube leading to the patient's vein. The fluid is kept hot in the thermos bottles, and further heated by an electric pad wrapped around the patient's arm or leg, including the lower two feet of tubing. The average ration for the average patient is a gallon of saline with a pound of glucose a day, or 200 c.c. per hour. I have seen this apparatus used for 27 consecutive days in a severe case of streptococcic meningitis with complete recovery. If a blood transfusion is deemed advisable, a pint of citrated blood is added to a pint of 10 per cent glucose in saline and allowed to trickle slowly into the recipient. This blood may be kept after citrating for a period ranging from instant use up to and including 30 days. If a reaction seems imminent all one need to do is to turn off the blood; as the reaction subsides turn the blood on again. In my opinion the gradual administration of blood or any other fluid is much preferred to quicker methods. By this method there is no increase of work placed upon the circulatory apparatus and the system is more able to accommodate itself to the increased volume of fluid.



# THE JOURNAL

OF THE

## Missouri State Medical Association

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MAY, 1931

### EDITORIALS

#### THE JOPLIN SESSION

MAY 11, 12, 13, 14, 1931

Eight years ago the Association held its annual session in Joplin under the presidency of Dr. A. R. McComas, Surgeon. The only other session held in Joplin was in 1914 when the late Dr. E. H. Miller, of Liberty, presided. Looking back a little further, another session was held in Jasper County in 1881 at Carthage when Dr. J. M. Allen, of Liberty, presided. Joplin was a generous host in 1923 but this year the plans for entertaining the Association are even more elaborate than they were in 1923.

The Connor Hotel will be the headquarters and all sessions will be held on the Connor Hotel Roof. The first business session of the House of Delegates will occupy all of Monday, May 11, beginning at 9:30 o'clock. A recess will be taken between 1:00 and 3:00 o'clock during which hours the Council will hold its session. The House of Delegates will reconvene at 3:00 o'clock and complete the transaction of the business affairs of the Association with the exception of the election of officers for the next year. This part of the business will be transacted on Wednesday afternoon at 3:45 o'clock at which time the scientific session will be interrupted in order to give the House of Delegates time to complete its work.

The scientific session begins at 8:30 a. m. Tuesday, May 12, and continues daily until the close of the meeting on Thursday afternoon.

The addresses of our President, President-Elect and guests will be delivered at the public meeting to be held on the night of Tuesday, May 12, instead of on Wednesday night as has been customary in former years. This change was made in response to the requests of some members who thought that this session of the Association would attract a larger number of members if held on Tuesday instead of Wednesday night.

The Secretaries' Dinner will be held at the Connor Hotel, Wednesday, May 13, at 6:00 p. m.

The entertainments planned by the members in Jasper County include a boxing match at Memorial Hall, Monday, May 11, at 8:00 p. m.; a golf tournament at the Schifferdecker Golf Course the afternoon of Tuesday, May 12; a trap-shooting tournament on Tuesday, May 12, at 4:00 p. m.; a luncheon meeting of the Missouri Chapter, Phi Beta Pi medical fraternity, at the Connor Hotel, Wednesday noon, May 13; a sight-seeing trip on Wednesday, May 13, at 3:00 p. m., and a stag buffet dinner and cabaret on the Connor Hotel Roof, Wednesday, May 13, at 7:00 p. m.

The guests of the Association are: Dr. Morris Fishbein, Chicago, Editor, *The Journal of the American Medical Association*; Dr. Alton Ochsner, New Orleans, Professor of Surgery, Tulane University Medical School; Dr. C. E. Rice, Rolla, Passed Assistant Surgeon in charge of Trachoma Prevention, United States Public Health Service; Dr. E. P. Sloan, Bloomington, Ill., a past president of the Illinois State Medical Society; Dr. G. S. Foster, Manchester, N. H., Surgeon in Charge of Lucy Hastings Hospital, and Dr. Charles W. Greene, Columbia, Mo., Professor of Physiology, University of Missouri.

The outlook for the success of this meeting is very promising. Not only will the members be afforded an opportunity to enjoy the entertainments the Committee on Arrangements has scheduled, but the scientific program offers a variety of subjects presented by speakers well prepared to discuss the topics assigned to them.

Members who have not yet reserved rooms for the meeting are urged to write direct to the hotels or to the chairman of the Committee on Hotels, Dr. H. L. Wilbur, 830 Frisco Building, Joplin. The personnel of the Committee on Arrangements follows:

#### GENERAL COMMITTEE ON ARRANGEMENTS

Dr. R. M. James, Joplin, Chairman; Dr. W. M. West, Monett; Dr. Guy Titsworth, Sedalia.

#### LOCAL COMMITTEE ON ARRANGEMENTS

Dr. O. T. Blanke, Joplin, Chairman; Drs. Ed. James and B. E. DeTar, of Joplin.

Committee on Entertainment: Dr. J. Albert Chenoweth, Joplin, Chairman; Drs. L. B. Clinton, M. O. Coombs, W. H. Mallory and A. B. Clark.

Committee on Reception: Dr. Leroy W. Baxter, Joplin, Chairman; Drs. H. A. LaForce, H. A. Leaming, W. B. Post and R. M. Stormont.

Committee on Hotels: Dr. H. L. Wilbur, Joplin, Chairman; Drs. V. E. Kenney, J. L. Sims and C. G. Martin.

Committee on Golf: Dr. A. M. Gregg, Joplin, Chairman; Drs. E. R. Hornback and M. O. Coombs.

Committee on Registration: Dr. A. Benson Clark,

Joplin, Chairman; Drs. E. J. Burch and J. E. Douglass.

Committee on Auto Transportation: Dr. H. D. McGaughey, Joplin, Chairman; Drs. A. M. Gregg, B. E. DeTar, D. R. Hill and K. B. Huffman.

Committee on Exhibits: Dr. Paul W. Walker, Joplin, Chairman; Drs. Roy Myers and S. A. Grantham.

Committee on Publicity: Dr. J. W. Barson, Joplin, Chairman; Drs. C. M. Balsley and G. I. Meredith.

## HOTELS AND RATES AT JOPLIN

Reservations for hotel accommodations at Joplin should be made in advance of the meeting. Members are urged to communicate with the hotels direct and mention what accommodations they would like to have reserved for them. It is important to mention the price of room desired and to state the probable date of arrival. Should it happen that the hotel is unable to make the reservation desired, members should then write the chairman of the Committee on Hotels, Dr. H. L. Wilbur, 830 Frisco Building, Joplin. The names of the hotels and rates follow:

### HOTEL CONNOR (400 rooms)

	One Person	Each Additional Person
Room with toilet and lavatory, double bed .....	\$2.00	\$1.50
Room with bath, one double bed....	2.50	1.50
Room with bath, two double beds...	3.50	2.00
Room with bath, twin beds.....	3.00	2.00
Room with combination tub and shower, one double bed.....	3.50	2.00
Room with combination tub and shower, twin beds.....	4.00	2.00
Room with bath, one double bed....	4.00	2.00
Room with bath, one double bed....	4.50	2.00
Two-room suites, parlor and bedroom	6.00 up	2.00

### HOTEL YATES (50 rooms)

Single room, without bath.....	\$1.25
Single room, with bath.....	1.75
Double room, without bath.....	2.00
Double room, with bath.....	3.00

### AMERICAN HOTEL (50 rooms)

Single room, without bath.....	\$1.00 to \$1.50
Single room, with bath.....	2.00
Double room, without bath.....	1.50 to \$2.00

### KEYSTONE HOTEL (50 rooms)

Single room, without bath.....	\$1.50
Single room, with bath.....	2.00
Double room, without bath.....	2.00
Double room, with bath.....	3.00

## BILL AMENDING THE WORKMEN'S COMPENSATION LAW APPROVED BY GOVERNOR CAULFIELD

The bill introduced by Senator Joseph H. Brogan at our request amending the Workmen's Compensation Law by increasing the minimum sum allowed for the first sixty days following an injury from \$250 to \$750 and ex-

tending the period of time from sixty days to ninety days, was passed by the Senate on April 8 and approved by Governor Caulfield on April 16. The amendment to the statute will become effective ninety days after the legislature adjourns. At this writing it is uncertain when the Assembly will have its final termination because of the trial of State Treasurer Larry Brunk by the Senate.

The bill that was passed and signed by the Governor was H. B. 403 introduced by Senator Brogan on February 12 and passed by the House on March 24. It then went to the Senate and was reported out Do Pass by the Senate Committee on Insurance on March 31; on April 8 it was substituted for S. B. 222 and passed by the Senate by a vote of 21 to 7.

It might be interesting for members to know which senators voted against the bill. So far as we have been able to learn there was no objection to the passage of this bill on the part of insurance companies or by others who might have been interested in its provisions. The vote of seven senators against its passage therefore is somewhat puzzling, especially since several of these senators were regarded as friendly to the measure. The names of the senators who voted against the bill follow: D. L. Bales, Eminence; Albert M. Clark, Richmond; Edwin C. Curfman, Maryville; J. H. Gunn, Otterville; John E. Luther, Memphis; Ralph Wammack, Bloomfield; James H. Whitecotton, Paris.

## A CONVALESCENT HOME FOR CRIPPLED CHILDREN

Through the generosity of the late Mrs. Louis P. Blosser, Marshall, Mo., the crippled children's service of the medical school of the University of Missouri will be appreciably extended and probably a larger number of these unfortunate children receive operative and corrective treatment than is now possible in the university hospitals.

This added service to crippled children has been made available by the beneficence of Mrs. Blosser who provided in her will for the establishment of the Georgia Brown Blosser Home for Crippled Children at Marshall and left a fund of \$500,000 for the maintenance of the home. Mrs. Blosser was a daughter of the late Mr. Paul Brown, St. Louis, whose name she desired to perpetuate in this manner. She herself was a cripple. Mrs. Blosser left additional funds to establish another home at Marshall which will be known as the Georgia Brown Blosser Home for Old Ladies.

Dean Edgar Allen of the University of Missouri School of Medicine said the gift of Mrs.



Blosser's splendid home in Marshall and the fund of \$500,000 will enable the University to establish a convalescent home for the crippled children and thus extend the service in a direction that is most essential for effective treatment but has hitherto been wholly impossible to give them.

The proximity of Marshall to Columbia will permit university physicians and nurses to visit the home at frequent intervals. When the service is fully established an orthopedic surgeon or nurse will probably be stationed at the home.

Convalescent homes are available to indigent crippled children treated in St. Louis and Kansas City and have contributed so successfully to the final results that the homes in these cities, although supported by private donations, have been maintained in continuous operation.

When the equipment and preparation of Mrs. Blosser's home will be completed cannot now be said. These matters must await the probating of Mrs. Blosser's will.

### UNDULANT FEVER

While the medical profession is devoting much thought to undulant fever, the veterinarians are busy with their problem of infectious abortion in cattle and swine. At the Eleventh International Veterinary Congress in London last summer a resolution was adopted calling attention to the need for scientific research on the control of infectious abortion in cattle and swine, its immunology and its relation to undulant fever in man. Since this meeting fourteen state institutions and the Bureau of Animal Industry, United States Department of Agriculture, have made studies of the disease. The Government work was reported by Dr. John R. Mohler, chief of the bureau, at a recent meeting of the Ontario Veterinary Association in Toronto.

Of most interest to the medical profession probably is the experiment in vaccination against infectious abortion which Dr. Mohler characterized as holding highly promising possibilities and offering enough encouragement to justify continued research. Sixteen heifers, five of which were not vaccinated, were exposed to the disease during gestation periods. The results indicated that the vaccine protected the heifers against abortion as most of the control animals aborted. Only strains of low or medium virulence were found satisfactory to use since the virulent strain was found to persist in one of the calves for a considerable time. Dr. Mohler said that a high abortion rate in a herd is not necessarily caused by the bacterium usually found in undulant fever in man and in infectious abortion in cattle.

The persistence of infective material in pastures is being investigated by the bureau and preliminary studies indicate that under favorable conditions an excessively contaminated pasture becomes safe for grazing in less than a month although as yet, wet swampy pastures have not been studied.

Intercommunicability of the cattle and swine types of the disease is of special importance from the standpoint of human health, Dr. Mohler pointed out, saying that the disease in swine appears to be much more virulent than it is in cattle and more virulent when transmitted to man. In the experiments conducted by the bureau cattle have been infected with the swine type artificially but swine appeared resistant to the bovine type of the disease.

While much work has been conducted on the detection of udder infections and improved methods have been developed for interpreting the agglutination blood test further study is necessary for dependable diagnosis. The bureau has also attempted to determine the value of medicinal agents for destroying the organism in the udders of infected animals but so far has found no drug that would cause any reduction of the infection in the animals treated.

Dr. Mohler thinks that the mucous membrane of the eye and the unbroken skin of the animal should be classed with the alimentary tract as important avenues of invasion.

[N. B. In this issue we present three papers on undulant fever which members are invited to read in connection with this investigative work of the Bureau of Animal Industry. Ed.]

### REGISTERED HOSPITALS

Some idea of the importance of the hospital in the activities of the medical profession can be gained from the statistics given in the tenth annual presentation of data by the Council of Medical Education and Hospitals of the American Medical Association and published in the association journal for March 28.

In Missouri there were 159 hospitals with 26,078 beds registered by the Council at the close of 1930. Of this total 23 of the institutions with 589 beds were listed as being deficient in some respect—inadequacy of laboratory facilities, staff organization, radiologic service, records, etc. The average daily number of patients in the registered hospitals was 21,141. Twenty-four of the hospitals are approved for general internship and 13 for residency in specialties; 43 have schools of nursing accredited by the state board of nurse examiners. The Council refused to register 32 other hospitals in Missouri as failing to meet the standards required by the American Medical Association.

There were 6,719 hospitals in the whole country registered by the Council at the close of 1930 with a total of 278,634,430 patient days recorded for the year, an increase of 13,364,840 days over 1929. The daily average number of patients in all registered hospitals was 763,382.

Government and charitable institutions served an unusually large number of persons but many of the hospitals that receive only pay patients showed a decreased number of admissions. The daily average of unoccupied beds in all hospitals increased in 1930, the non-charity institutions being responsible for the higher average of vacancies.

Since 1909 when the first complete list of hospitals was compiled by the American Medical Association, the number of hospital beds has increased 127 per cent. As the hospitals have grown in number they have increased their facilities for training physicians. There are now 664 approved hospitals offering 5,584 internships to the graduates of 76 acceptable medical schools but there are 316 teaching hospitals with a bed capacity of 135,548 affiliated with the 76 medical schools for teaching purposes and make the high quality of the clinical service possible. And for those who wish to pursue some special branch of practice there are 349 approved hospitals offering 2,069 residencies in various specialties. No estimate has been made of the number of institutions offering postgraduate courses.

The growth of the hospital has proceeded with and is largely because of the increasing transfer of the practice of medicine from the home to the hospital. The only physicians not having a majority of their number connected with hospitals are the general practitioners. Approximately two thirds of the physicians in the United States are connected in some way with hospitals, the report showing that 98,491 of the 142,500 physicians in active practice are members of hospital staffs, superintendents, residents or interns.

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#### SOME ACTIVITIES OF THE UNITED STATES PUBLIC HEALTH SERVICE

Approximately \$11,000,000 is spent annually by the United States Public Health Service and a personnel of more than 5,000 workers is employed to carry on the functions of the service as the Government's chief instrument in the conservation of the health and life of the people. In addition to the number employed by the service there are 4,500 state and municipal health officers who devote all or part of their time to the protection of health in their several localities and aid the service in the collection of data.

The functions of the service are summarized as: Protection of the United States from introduction of diseases from without, prevention of interstate spread of disease, suppression of epidemics, cooperation with state and local health officers, investigation of diseases, supervision and control of biologic products, public health education and dissemination of health information, treatment of certain beneficiaries as provided by law, and the treatment of drug addicts and inmates of Federal prisons.

The service was established in 1798 by an act of Congress which provided for the care of sick and disabled seamen. A tax of 20 cents per month was collected from all seamen employed on American vessels engaged in foreign and coastwise trade and the service made a part of the Treasury Department. Gradually Congress began to extend the activities of the service, in 1878 giving authority to impose quarantine to prevent the entry of disease into the country from abroad. It was not until 1890 that authority was given to impose quarantines to prevent interstate spread of disease and then the authority was limited to the prevention of cholera, yellow fever, smallpox and plague. In 1893 this authority was extended to cover all infectious and contagious diseases and provision was made for cooperation with state and municipal health agencies to prevent the introduction and interstate spread of such diseases.

In 1902 the name of the service was changed from "The Marine Hospital Service" to the "Public Health and Marine Hospital Service," and in 1912 the name became "The United States Public Health Service."

In 1901 the Hygienic Laboratory was established as a part of the activities of the service. The work of the laboratory proved so important that in 1930 Congress increased the facilities for research, provided for the acceptance of unconditional gifts and bequests from private sources for the study of the fundamental problems of disease, authorized the appropriation of \$750,000 for additional buildings and equipment and changed the name of the laboratory to the National Institute of Health still under the control of the service. Today this institution is recognized as one of the foremost research centers in the world.

In protecting the United States from the introduction of disease two divisions function: one prevents the entrance of diseased persons into this country after arriving at United States ports, the other examines aliens applying for visas to this country. Domestic quarantine service has control over interstate quarantine regulations, development of state departments of health, control of water supplies on interstate carriers, sanitation in national parks,



prevention and control of trachoma, demonstration of rural sanitation, and contacts with state and territorial health officials.

In the supervision and control of biologic products the service tests the purity and potency of viruses, vaccines, therapeutic serums, toxins, antitoxins and analogous products valued at well over \$10,000,000 annually.

During the last fiscal year research has been directed toward the prevention and cure of cancer, control of the Anopheles mosquito and the pellagra-preventive value of foodstuffs, Rocky Mountain spotted fever, child health problems, ventilation and lighting, water pollution and natural purification, psittacosis, Jamaica ginger paralysis, trachoma, and the bubonic plague hazard from plague-infected ground squirrels in California. Demonstration projects in rural sanitation were conducted in 202 counties in 24 states.

Among other important studies the service expects to undertake are investigation of heart disease, mental hygiene from the standpoint of biochemistry and endocrinology, prevention of undulant fever, and promotion of whole-time local health organizations.

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### WARNING

Members are warned that a magazine solicitor is victimizing physicians who pay cash for subscriptions. A letter appearing under correspondence\* tells of his activities in St. Joseph and other cities in the Middle West.

\* See page 240.

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### NEWS NOTES

Dr. L. O. Nickell, Moberly, was elected mayor of that city April 7.

The scientific session of the American Heart Association will be held, June 9, at Philadelphia. The meeting will convene in the main surgical clinic of the Pennsylvania Hospital from 10:00 a. m. to 5:00 p. m.

Cancer caused the death of 3,917 persons in Missouri last year, according to the bureau of vital statistics of the state board of health. This number represents 108 deaths in each 100,000 of population in the State.

Dr. Sinclair Luton and Dr. James F. McFadden, both of St. Louis, were guests of the Union County (Illinois) Medical Society, Anna, Illinois, March 12. Dr. Luton conducted a heart clinic and Dr. McFadden presented a clinical lecture on "Postepidemic Encephalitis."

The annual meeting of the University of Missouri alumni is scheduled at the Connor Hotel, Joplin, Tuesday noon, May 12, the second day of the meeting of the State Medical Association.

The next meeting of the Missouri State Board of Health for the examination of applicants for license to practice medicine in Missouri will be held at the Washington University School of Medicine, Euclid and Kingshighway, St. Louis, June 10, 11, 12, 1931.

The Missouri alumni chapter of the Phi Beta Pi medical fraternity will hold a noon meeting Wednesday, May 13, during the State Medical Meeting at Joplin. A luncheon will be served at the Connor Hotel and all members of the fraternity are urged to make reservations to attend.

A bronze bust of Dr. Charles Augustus Bernays, St. Louis surgeon who died in 1907, has been given to the Missouri Historical Society and will be placed in the medical section of the main exhibit room of the Jefferson Memorial in St. Louis. The bequest was made by the late Miss Thekla Bernays, a sister of Dr. Bernays. Dr. Bernays practiced in St. Louis for over a quarter of a century before an early death cut short his useful life.

The national board of trustees of the Shriners' Hospitals for Crippled Children held its midwinter session in St. Louis, March 24. A budget system for the ten permanent and five mobile hospitals was perfected and will be put into operation soon. Homes for convalescent patients were discussed but it was decided that hospitals at Richmond, Va., and Pittsburgh, Pa., should be the next project of the association, but these cannot be considered for several years. The St. Louis unit of the hospital system, the largest and the central institution, accommodates approximately a hundred patients and has a waiting list of 214 names.

That a basis for recommendations by the United States Public Health Service in industrial malarial work might be gained, a survey of the malarial control work of the Missouri Pacific lines was begun April 3. The railroad has spent \$100,000 in the control of malaria in Missouri, Arkansas, Louisiana and Texas since the program was undertaken seven years ago and it is estimated that an economic saving of at least half a million dollars has resulted to workers in wages alone. The survey is under the supervision of A. W. Fuchs, sanitary engineer of the United States Public Health Service, and L. A. Henry, St. Louis, who has charge of the railroad's health work.

A fund for purchasing the land in Springfield, selected by the Government as the site for the Federal prison hospital, has been oversubscribed by the citizens of Springfield. The 445-acre tract which is just south of the city limits will be donated to the Government for the three-million-dollar institution.

During the last twenty-four years the Federal Food and Drug Administration has terminated 18,000 formal legal actions in Federal courts, according to W. G. Campbell, director of regulatory work, United States Department of Agriculture. Criminal prosecutions have increased recently due to the fact that Congress has granted added working funds and enforcement procedure has been speeded up. Mr. Campbell points out that minor violations of the law are corrected, as a rule, by a notification to the manufacturer and that the primary purpose of the Administration is not to multiply legal actions but to protect the public and the honorable manufacturer by preventing the sale and interstate shipment of adulterated and misbranded foods and drugs.

The site of the first United States Narcotic Farm has been selected at Lexington, Ky., and necessary buildings are being planned, according to Surgeon General H. S. Cumming of the United States Public Health Service. Two such farms were recently authorized. The service has established medical and psychiatric clinics in several penal and correctional institutions and medical officers have been assigned. The work is under the division of mental hygiene which was formerly designated narcotics division. The functions of this division include the administration of the two narcotic farms, studies and investigations of the nature of drug addiction and the best methods of treatment and rehabilitation of persons addicted to the use of habit-forming drugs, the dissemination of information on methods of treatment and research in this particular field, cooperation with state and local jurisdictions with a view to their providing facilities for the care and treatment of narcotic addicts, the supervising and furnishing of medical and psychiatric service in Federal penal and correctional institutions, studies and investigations of the abusive use of narcotic drugs and the quantities of such drugs necessary to supply the normal and emergency medicinal and scientific requirements of the United States. The division also has supervision of studies and investigations of the causes, prevalence, and means for the prevention and treatment of mental and nervous diseases.

Beginning June 15 and continuing to June 26 the St. Louis Clinics will conduct a post-graduate course and clinical conferences in the various hospitals and clinics in St. Louis. Well known teachers from other medical centers will conduct clinics and a wide variety of types of diseases will be presented. Those desiring further information should address The St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

Dr. Eugene A. Scharff, St. Louis, was appointed superintendent of the new St. Louis County Hospital, March 25. Dr. Scharff was graduated from the Missouri Medical College (now Washington University School of Medicine) in 1898. For six and a half years he was superintendent of the St. Louis City Hospital, resigning in June, 1929. Dr. Scharff was one of nine candidates for the superintendency of the County Hospital. His application was accompanied by a petition signed by 100 physicians and citizens of St. Louis County. The appointment was made by the St. Louis County Court assisted by three physicians. The hospital which is located in Clayton is expected to be open for the reception of patients within the next few months. The institution is equipped for 150 beds and a visiting staff of sixty physicians has been approved by the county court.

A recent report on private group clinics issued by the Committee on the Cost of Medical Care gives the conclusion that "Group clinics are in direct economic competition for the medical service which constitutes the major portion of the practice of independent practitioners." Both advantages and disadvantages of group medical practice were pointed out. Advantages included: Convenience to the patient when services of several specialists are required, the volume of service makes standard rates for different individual cases possible, the employment of a business manager, as is possible in a clinic, increases the physician's opportunity for scientific research, and the financial status of patients can be investigated through the business office. Disadvantages included: Clinics cannot easily adjust service to the convenience of a patient who requires the attention of only one physician, and personal relationship with the patient is more difficult. The report states that the large proportion of clinics has been established since the World War and that most of them are located in the Far or Middle West. The total number of private group clinics is estimated as 150 and the medical personnel 2,000. Deductions given in the report are based on a study of 55 clinics.



Thirty-seven nations were represented at a world conference on welfare work with the blind in New York in April. Invitations to the meeting were issued by President Hoover to fifty countries. Seven persons active in work for the blind in Missouri attended.

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Dr. J. J. Drace, for many years a practitioner at Kennett, has moved to Springfield, Missouri, where he is associated with Dr. D. M. Huffman at 222½ W. Commercial Street. Dr. Drace will limit his practice to the diseases of the eye, ear, nose and throat.

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The American Proctologic Society will hold its thirty-second annual meeting at Philadelphia, June 7, 8, 9, with headquarters at the Bellevue-Stratford Hotel. Dr. Samuel E. Newman, St. Louis, will read a paper on "Embolism." Mr. J. P. Lockhart Mummery, London, Chief Surgeon of St. Mark's Hospital, will give a series of addresses. Further information may be obtained by addressing Dr. Curtice Rosser, Secretary, 710 Medical Arts Building, Dallas, Texas.

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The annual conference of the Mid-West Hospital Association representing hospitals in Missouri, Kansas and Oklahoma, was held in St. Louis, April 17 and 18. Practical phases of hospital administration were discussed. Among those addressing the convention were Dr. Christopher G. Parnall, Rochester, N. Y., retiring president of the American Hospital Association; Dr. Bert W. Caldwell, Chicago, executive secretary of the American Hospital Association; Dr. Curtis H. Lohr, St. Louis, hospital commissioner; Dean Alphonse Schwittalla, St. Louis University School of Medicine. Miss E. Muriel Anscombe, St. Louis, superintendent of the Jewish Hospital, was installed as president.

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The sale and distribution of methanol wood alcohol will be stringently regulated in Maryland according to the provisions of a bill which went into effect April 7. All methanol wood alcohol must bear a label, according to the bill, stating that it is violently poison and cannot be made nonpoisonous and will cause blindness or death if taken internally. The fluid must be colored to prevent it being confused with potable alcohol and must contain a substance which will cause vomiting if imbibed. A record including name and address of purchaser and intended use must be kept of all sales of less than 50 gallons. The penalty for violation of the law includes a fine of not more than \$500 or imprisonment for not less than three months or more than one year.

The St. Louis Trudeau Club will hold its next regular meeting, Thursday, May 7, at 8 o'clock at Robert Koch Hospital, St. Louis. The scientific program follows: "Incidence of Symptomless Renal Tuberculosis as a Complication of Pulmonary Phthisis," by Drs. Grayson Carroll, Ralph L. Ehrlich and Reuben E. Stone; "Differential Diagnosis Between Joint Tuberculosis and Joint Syphilis," by Drs. Alexander E. Horwitz and Jacob Stolar; "Review of Tuberculosis in Children at Koch Hospital," by Drs. Julius A. Rossen and Royal A. Weir; "Further Observation on Schilling Differential Blood Count in Tuberculosis," by Dr. George W. Wilson; "Review of the Patients at Robert Koch Hospital With Reference to Symptoms and Early Medical Advice," by Drs. Joel Tinder Woodburn and Robert H. Riedel. Members of the Association are invited to attend.

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The American Association of Genito-Urinary Surgeons held a two-day meeting in St. Louis March 6 and 7, with Dr. John R. Caulk as host. The meetings of this association are exclusively clinical, the two days being devoted entirely to the surgical aspects and technical procedures of genito-urinary therapy. The discussions are informal and unrestrained.

The session on March 6 was devoted to major surgery on the kidney and bladder and numerous punch operations for the relief of prostatic obstructions. This was followed by a luncheon on the roof of the St. Louis Maternity Hospital where the members met Mr. John F. Queeny and his son, Edgar, who had given the money for the complete equipment of the department of urology in the Mallinckrodt Radiological building.

After luncheon the association met in the medical school of Washington University where members gave demonstrations of different phases of chemistry and physiology as applied to urology. In the evening there was a dinner at the Bridlespur Hunt Club. After dinner three hours were spent transacting the business of the association and discussing the programs of previous years. This is an interesting feature of the association's work for at this time cases that were presented at other meetings are brought in and discussed, particularly cases of carcinoma, in order to observe the late results from the different operations.

On March 7 the meeting was entirely surgical, beginning at 9 and ending at 1 o'clock.

This association was formed in St. Louis twelve years ago during the sessions of another organization and is the outgrowth of plans discussed at that time between Dr. Wm. E. Lower, Cleveland, Ohio, and Dr. John R. Caulk, St. Louis. Dr. Lower was elected the first presi-

dent and the first meeting was held in Cleveland in 1920. The association has twenty members. Seventeen of them attended the St. Louis session this year. The members are: Drs. N. G. Alcock, Iowa City, Iowa; Wm. F. Braasch, Rochester, Minn.; Hugh Cabot, Ann Arbor, Mich.; John R. Caulk, St. Louis; Francis R. Hagner, Washington, D. C.; Frank Hinman, San Francisco; Wm. E. Lower, Cleveland; B. S. Barringer, Edwin Beer, Henry G. Bugbee, Edward L. Keyes, and J. Bentley Squier, of New York City; A. L. Chute, John H. Cunningham, and Wm. C. Quinby, of Boston; Herman L. Kretschmer, and L. E. Schmidt, of Chicago; David W. MacKenzie, and Frank S. Patch, of Montreal; Hugh H. Young, Baltimore.

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The United States Civil Service Commission announces open competitive examinations for medical officer, associate medical officer and assistant medical officer in general medicine and surgery. Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than June 30. The examinations are to fill vacancies occurring in the United States Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Service. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience and certification made as the needs of the service require. Full information may be obtained from the Civil Service Commission at Washington, D. C., or the secretary of the Civil Service Board of Examiners at the post office or customhouse in any city.

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The following speakers responded to requests of the Postgraduate Committee of the State Association to deliver addresses at various recent meetings of county medical societies:

Drs. A. A. Werner and Frank J. Tainter, of St. Louis, were guests of the Chariton County Medical Society at Salisbury, February 26. Dr. Werner read a paper on "The Menopause; Artificial and Natural," illustrated with lantern slides. Dr. Tainter addressed the members on "The Diagnosis of Acute Conditions Within the Abdomen."

Dr. G. Leonard Harrington, Kansas City, attended the March 3 meeting of the Boone County Medical Society at Columbia and gave a lecture on "Psychology in Medicine." On the same day he spoke before the regional meeting of the Missouri State Conference for Social Welfare, his subject being "Mental Health."

On March 6 Dr. Charles D. O'Keefe, St.

Louis, was the guest of the Marion County Medical Society at Hannibal. Dr. O'Keefe, who is a native of Hannibal, read a paper entitled "Ovarian Cysts."

Dr. E. G. Mark, Kansas City, was the guest of the Jasper County Medical Society on March 10 when he gave a talk on "Some of the Newer Methods of Urography."

On March 13 the Nodaway County Medical Society was host to Drs. W. C. Gayler, E. J. Goodwin and Emmett P. North, of St. Louis, and Dr. James R. McVay, Kansas City. Dr. Gayler addressed the Society on "Obstetrics from the Mechanical Viewpoint"; Dr. Goodwin spoke on "The County Medical Society Secretary"; Dr. North talked on "Eye Diseases and Their Relationship to the General Practitioner," and Dr. McVay read a paper on "The Value of the Rectal Examination." On April 3 they attended the meeting of the Marion County Medical Society held at Hannibal and delivered similar addresses.

Drs. A. H. Conrad and L. H. Jorstad, of St. Louis, attended the meeting of the St. Francois-Iron-Madison County Medical Society held at Leadwood March 24. Dr. Conrad gave an illustrated lecture on "Drug Eruptions." The subject of Dr. Jorstad's paper was "Lip Cancer," illustrated with lantern slides.

The Howell-Oregon-Texas County Medical Society had as its guests on March 26, Drs. C. H. Shutt and H. G. Lund, of St. Louis. This meeting was held at West Plains. Dr. Shutt talked on "Gallbladder Disease and Complications" and Dr. Lund lectured on "Obstruction in the Upper Urinary Tract."

Dr. Frank D. Dickson, Kansas City, spoke before the Jasper County Medical Society at Joplin, April 7, his subject being "Closed Reduction and Treatment of Fractures."

Dr. M. L. Klinefelter, St. Louis, was the guest of the Greene County Medical Society at Springfield and read a paper on "Fractures" at the evening meeting on April 10. The next day he conducted an operative and diagnostic clinic at St. John's Hospital.

On April 10 Dr. John D. Hayden, Kansas City, gave a talk before the Nodaway County Medical Society at Maryville, his subject being "The Injection Treatment of Varicose Veins."

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Several Missouri physicians and surgeons will be guest speakers on the program of the Illinois State Medical Association in East St. Louis, May 5, 6 and 7. The association has invited all Missouri State Medical Association members to attend the meeting.

General sessions will be held Tuesday evening and Wednesday afternoon and evening. At the meeting Tuesday evening Dr. Richard



L. Sutton, Kansas City, will give an illustrated lecture on "The Long Trek." On Wednesday afternoon Dr. Evarts A. Graham, St. Louis, professor of surgery, Washington University School of Medicine, will give the Oration in Surgery, and Dr. W. W. Duke, Kansas City, will present the Oration in Medicine at the evening session following the president's address.

On Tuesday a joint session of the sections on medicine, surgery, public health and hygiene, and radiology will be held at 1 o'clock. At this session Dr. Ernest Sachs, St. Louis, professor of neurologic surgery, Washington University School of Medicine, will speak on "Diagnosis of Spinal Cord Lesions," and Dr. Edward H. Skinner, Kansas City, will give an address on "The Roentgen Examination."

The section on eye, ear, nose and throat will meet at 1 o'clock Tuesday and Dr. Vilray P. Blair, St. Louis, will speak on "Surgery of the Structures Related to the Inner Canthus of the Eye." Dr. Richard L. Sutton, Kansas City, will give an illustrated lecture on "Big Game Hunting" at the annual banquet of the eye, ear, nose and throat section Tuesday evening. Following the general session Wednesday afternoon the members of this section will visit the new McMillan Hospital in St. Louis.

Dr. L. R. Sante, St. Louis, professor of radiology, St. Louis University School of Medicine, will speak before the section on radiology Wednesday morning on "Factors Concerned in Radiation Therapy of Malignant Disease," and Dr. Edwin C. Ernst, St. Louis, will present an address on "The Present Status of Penetrating X-Rays and Radium in Deep-Seated Cancer and Other Diseases." Dr. Sante and Dr. M. F. Engman, St. Louis, will open the discussion of papers presented in the Thursday morning session of the radiology section.

Dr. Walter C. G. Kirchner, St. Louis, a former superintendent of the St. Louis City Hospital, became medical director of that institution, March 1. The post was created by an ordinance passed by the board of aldermen in May, 1930. The ordinance provides for the separation of the functions of the superintendency into medical and administrative duties giving the medical director supervision of the resident staff and of the treatment and care of the patients, and leaving the business routine of the hospital to be administered by the superintendent. Dr. Kirchner comes from a family of physicians. His grandfather graduated from the medical school of Washington University in 1868 and was one of the organizers of the St. Louis College of Pharmacy. His father received his diploma from the Washington

University School of Medicine in 1872. Dr. W. C. G. Kirchner received his medical degree from the same school in 1901 and the same year became junior physician at the St. Louis City Hospital. He was assistant superintendent of the City Hospital from 1903 to 1907 and superintendent from 1907 to 1910 when he retired to private practice specializing in surgery and became a member of the visiting staff of the hospital. He served in the Medical Corps in France during the World War being attached to Base Hospital No. 69 A. E. F. with the rank of major. Dr. Kirchner is a member of the St. Louis Medical Society, a Fellow of the American Medical Association and the American College of Surgeons, a member of the Western Surgical Association, the Southern Surgical Association and other surgical societies. When the ordinance was adopted creating the new post and freeing the officer in charge of medical supervision from business responsibilities Dr. Curtis H. Lohr, hospital commissioner, characterized the ordinance as "the most decided step forward in the City Hospital division of St. Louis for the past ten years."

The number of cases of influenza during the four-week period ending January 31 was estimated by the United States Public Health Service as 26,924. This is a 263 per cent increase over the estimate of influenza cases for the same period last year. In the four-week period ending December 27, 1930, there were 4,660 cases reported. Reports of the United States Public Health Service show that the prevalence of poliomyelitis declined during the winter but remained 2.5 per cent higher than at the close of January last year. Reported cases of smallpox totaled 4,276 during January, 1931, a decrease from 6,552 reported the last of January, 1930. Scarlet fever cases totaled higher than for two years being reported as 21,452 in January, 1931, as 19,030 in 1930, and 16,044 in 1929. The number of cases of measles reported during January of this year was approximately one third in excess of the cases in the same period in the two preceding years. Diphtheria cases declined from 6,706 in January, 1930, to 5,429 in January, 1931. Meningococcus meningitis cases declined 37 per cent from last January. Typhoid fever incidence was reported lower than in 1930 but higher than in 1929.

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## OBITUARY

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WALTER H. POLLMANN, M.D.

Life takes its hue in a great degree from the color of our mind. We form a mental picture

of someone we meet and if the reflection of this picture is of an impressive hue, this particular individual may in some way and at some time enter into our life.

This happened to the writer when he visited the senior Dr. Pollmann in his home about twenty years ago. There I met his son Walter, a young man about twenty-seven years old, of splendid physical build, just entering upon the practice of medicine having recently graduated from the St. Louis Medical College. The impression this young man made upon me was most favorable.

Time gave convincing proof. He was ambitious, studious and devoted to his profession. Under the guidance of his father, a most able physician, whose advice he respected and appreciated, he rapidly advanced into the rank of an outstanding general practitioner.

Dr. Walter Pollmann was obsessed with a passion for outdoor sports. When not engaged with the duties of his profession he would motor into the Ozarks in the vicinity of Lebanon, where he had a very comfortable lodge, to enjoy the quietude of this woodland retreat and would spend his time in fishing and hunting.

It was on a hunting trip the latter part of December that Dr. Pollmann contracted a severe cold which developed into a pneumonia, causing his death in the early hours of March 2.

That his condition became grave shortly after contracting the cold was apparent from the fact that his local physician refused to allow him to return home. For twelve days he was confined in his lodge, his only companions being his eleven-year-old son whom he had taken with him and his two hunting dogs. The natives were very kind to the doctor during his enforced stay and gave him the best care they could. These twelve days in the lodge must have been very trying days for Walter. I make this inference from a bit of the history he gave me. It was a rather touching incident and happened the third night of his illness. About 1 o'clock in the morning he was taken with a severe chill. It was a merciless attack that seemed without an ending. At about 3 o'clock he thought of sending his son, who was sleeping on the couch near by to the home of the caretaker, a half a mile down the road, to ask him to come and build a fire, but when he turned the flashlight on his son and found him sleeping so peacefully, he lost heart and proceeded to wrap the blankets more closely about himself. The chill was still severe when Walter thought of his dog "Rex" sleeping in an adjoining room. "Rex" was called and like all good dogs responded promptly. He was taken into bed and snuggled closely to the doctor's body. Within

an hour the animal heat from the dog made the doctor more comfortable. After that the dog shared the doctor's bed regularly. This really became a habit with dog and master and was continued after the doctor's return home. In fact one day I found both his dogs on the bed sound asleep, curled up near the doctor's right and left sides. The doctor was also asleep, his right hand resting on "Rex" and his left on "Dan."

After Dr. Pollmann's return home his progress toward recovery was rapid and eight days later he was free from fever and all respiratory distress had disappeared. Contrary to advice he left his bed, dressed and began to move about. There was a pronounced edema of his lower extremities and he was cautioned about being up too long. He continued to improve and on his own initiative drove out to a kennel in the country and came back with a beagle hound that he had fancied very much. Forty-eight hours after this trip he was taken with a severe chill at night. The following day a grave condition confronted him. Examination revealed an involvement of the right lung. The initial attack had involved the left lung. The already lowered resisting power of the system incurred by the former pneumonic inflammation greatly favored the active process in the right lung and on the seventh day caused death by acute cardiac dilatation.

Dr. Walter Pollmann was a good man, a good citizen, and a good doctor. This was his ambition: to humanity a friend, to his profession a guide, and to be in his faith a follower of the great physician who came to heal the world. Such combinations are not rare, yet with the increasing commercialism, and materialism of the age, the character of Dr. Pollmann so stands out that we are to take it as an exemplar worthy of all honor and imitation.

He never forgot his duty to God in fulfilling his duties toward his fellow men. He was kind to the poor, sympathetic with the sick, ethical toward his colleagues and courteous toward all men. He was loved alike by his patients and by his associates and the loss of his unselfish manly personality is a grievous one.

F.R., in *Bulletin* St. Louis Medical Society

#### THOMAS JEFFERSON DOWNING, M.D.

When Dr. Thomas J. Downing, New London, Missouri, was called to his reward the medical profession of Missouri lost one of its most honored and beloved members; the community in which he lived mourned the passing of a man whose high ideals and broad learning in medicine and other sciences made him an outstanding character, a man whose modest and



unassuming demeanor endeared him to his own people and to those whom he served in communities far removed from his home town.

Dr. Downing was a pioneer in northeast Missouri beginning his practice in that section of the state soon after his graduation from the St. Louis Medical College (now Washington University School of Medicine) in 1876. He was 79 years old when he died December 7, 1930, but the burden of the years rested lightly upon his shoulders for he was active in his practice until almost the hour of his death. On Sunday, December 7, he complained of a slight anginal attack in the morning but felt better during the day and took a little walk. Later he was found seated in his chair seemingly asleep with a copy of *THE JOURNAL* of the State Medical Association in his hand. Apparently he had died in his sleep for there was no sign of a struggle or painful expression on his countenance.

Dr. Downing was one of the most devoted members of our organization. The Ralls County Medical Society is composed of few members, with his death there being only two practitioners left in New London. Ever since the reorganization of the Association in 1903 Dr. Downing was the moving spirit that kept alive the interest of members in the welfare of the profession in his community. He served as delegate on numerous occasions and attended nearly all the annual meetings of the State Association. He was councilor of the district for many years, resigning at his own request in 1928. His thirst for knowledge seemed unappeasable and his library is probably one of the most extensive in the state aside from the large collections of books owned by some members in the larger centers of population. It is said that he had read every book in his library and some of them two or three times. His sphere of knowledge was broad and wide and a source of wonder to his friends.

The memory of Dr. Downing will live long and be cherished by those who were privileged to know him.

#### PINCKNEY FRENCH, M.D.

Dr. Pinckney French, St. Louis, a graduate of Miami Medical College, Cincinnati, 1873, died of cerebral hemorrhage at his home, March 4, aged 79.

Dr. French was born in Audrain County (Mo.) near Mexico, and began the study of medicine in the office of a Mexico physician. After obtaining his degree in medicine in 1873 he returned to Mexico to practice. In 1882 and 1883 he lectured in a medical school and edited a medical journal in Chicago, afterward returning to Mexico. Following a year of study in Europe Dr. French located in St. Louis in 1890 where he lived until 1912. Dur-

ing this time he taught in the College of Physicians and Surgeons and at Marion-Sims College which he helped to found. In 1917 Dr. French went to California where he remained until he returned to St. Louis a few years ago.

Dr. French's two interests were medicine and banking. At one time he was president of the Audrain County Medical Society and was first vice president of the State Medical Association in 1882. Following his other interest he was at different times connected in official capacities with several banking and trust companies.

He was ever ready to gain new knowledge and to gain new friends by helpful administration to their needs. As he attended to his professional and business duties he constantly increased the number of his friends and is mourned by many. Burial was in Mexico.

He is survived by his widow, Mrs. Reba French, his mother, Mrs. Malinda French, both of St. Louis, and a brother.

#### HEZRON U. DAUGHERTY, M.D.

Dr. Hezron U. Daugherty, Vinita, Okla., formerly of Mountain Grove, Mo., a graduate of Ohio Medical College, Cincinnati, 1878, died suddenly at Vinita, March 18, aged 79.

Dr. Daugherty was born in Virginia and as a child came to Missouri with his parents. He received his preliminary education in Crawford County (Mo.). In 1875 he located in a community which nine years later became Mountain Grove and began his medical practice at that time completing his studies in medicine three years later. He was one of the leading physicians in his vicinity for fifty years then retired and went to Vinita, Okla., that he and his wife might be with their children. For many years Dr. Daugherty was one of two physicians in Mountain Grove, the other being Dr. J. M. Hubbard who located there one year earlier and is still practicing.

Dr. Daugherty was a charter member of the Wright-Douglas County Medical Society and was interested in professional activities until his retirement. He was a physician of the old style who loved and was loved by his patients many of whom grew from infancy to heads of families under his guiding care.

Interment was in Mountain Grove amid the scenes where so much of his life was spent in the active service for the relief of his many friends who mourn his death.

#### CHARLES T. DUSENBURY, M.D.

Dr. Charles T. Dusenbury, Monett, a graduate of the College of Physicians and Surgeons, Keokuk, Iowa, in 1884, died suddenly at his home, December 20, 1930, aged 70.

Dr. Dusenbury received his preliminary edu-

cation in the common schools. After completing his medical course he began general practice and remained in general medicine until his death. He did not specialize except in kind ministrations to the sick. His patients were his friends. He was located in New Douglass, Ill., and Verona, Mo., before he made his residence in Monett. His kindness and efficiency are remembered by all who came in contact with him and he is mourned by many friends and colleagues.

Dr. Dusenbury was interested and active in his profession until the time of his sudden death. He was a member of the Barry County Medical Society, the State Medical Association and a Fellow of the American Medical Association.

## MISCELLANY

### JOPLIN BIDS YOU WELCOME

The site of the city of Joplin\* lies only 300 miles from the western boundary of the vast territory west of the Mississippi River known as the "Louisiana Purchase" which extended westward to the Rocky Mountains and from the Gulf of Mexico to British America. Trails from the east led through Joplin to Oregon and the Pacific coast. The acquisition of this region constitutes one of the most important events that ever occurred in the history of the United States. This vast section, known as Louisiana, was owned by France "by right of discovery" until 1763, when it was ceded to Spain. In 1800 a secret article in the treaty of Ildefonso ceded it back to France and Emperor Napoleon.

Napoleon coveted the island of St. Domingo off the coast of Louisiana as a military stronghold. Following his failure to bring the inhabitants of this island under submission he lost all interest in the possession of Louisiana as an asset toward the fulfillment of his own plans except that the income derived from its sale would help finance his army. Napoleon also realized that the occupancy of New Orleans by France would not only endanger the friendship of the United States and France but perhaps oblige the United States to make common cause with England, the Emperor's bitterest and most dreaded enemy. Napoleon saw that if the United States had this additional territory she would be the maritime equal of England who up to that time was the largest empire on earth. The purchase of Louisiana under such circumstances was easily negotiated. A treaty between the United States and France in 1803 included the purchase of Louisiana and was ratified by Congress on October 21 of the same year. The Government separated the newly acquired territory into districts, the "District of Louisiana" including the site of Missouri.

Joplin was named for the Rev. Harris G. Joplin who with John C. Cox emigrated to Missouri from Tennessee in 1839, they being the first settlers on the site. For approximately ten years

the only evidences of civilization were the log cabins of these two pioneers. There were settlements at Oronogo, Carthage and Neosho but these places seemed a long way off in those days. The site of Joplin was an uninviting waste of prairie cut by water courses from the edge of the foothills with only here and there a clump of bushes or a solitary tree.

Mr. Joplin's home was built by a spring in what is now East Joplin. This spring formed a small branch, which they named "Joplin's Spring Branch," that emptied into a creek called "Joplin Creek." Trails to the Far West passed through this section but little did the emigrant think that he need but stop and dig several feet into the earth to find wealth.

### Discovery of Lead

The first discoveries of lead in this vicinity were made in 1849 by David Campbell, an experienced miner who lived in Neosho. From traces on the surface, however, it was then supposed that the ore had been mined by Indians or the Spaniards at a much earlier date. Campbell and several friends mined in a half-hearted way for some time. Some machinery was brought in but during the Civil War mining was halted and the mines and machinery destroyed.

In 1870, two experienced miners from the Far West drifted into the district and started to prospect and examine the land. Four other miners, two from Oronogo and two from Carthage, moved in and started further development. The news soon spread and during the next few months the greatest excitement prevailed and hundreds of fortune hunters poured in from all sections. The population of the mining camp increased to 400 in several months.

### Town Incorporated

In 1871, John C. Cox laid out the town which was named Joplin, and the next year another camp on the west bank of the creek organized a village which was named Murphysburg. Murphy, Cox, Sergeant, Moffett, Davis, and other men influential with the several groups decided to consolidate the two towns into one to be known as Union City and a city charter was granted by the legislature. A census at that time showed 1,364 residents in the town of Joplin and 1,343 in Murphysburg. The town grew to 4,000 citizens but in December, 1873, the Barton County Court declared the charter to be illegal. On January 10, 1874, after a special election the two towns again petitioned the legislature for incorporation, this time under the name of Joplin, and such act was adopted March 24, 1874.

In 1876, a railroad was built from Joplin to Girard, Kansas, as a private enterprise by some of the wealthier miners. The road was later absorbed by the Frisco. This railroad pioneering was the cause of several other railroads being built into Joplin within the next five years.

### Growth of Population

The population of Joplin steadily increased by the addition of citizens from older states and communities. Joplin's population from the early days up to the present decade has held to an average of 97 per cent native white American citizens. By 1875 the population had increased to 6,000 and in 1880 to slightly over 8,000. In 1890 the Federal census showed a population of

\* THE JOURNAL is indebted to Dr. J. W. Barson, Joplin, chairman of the Committee on Publicity, for this story of Joplin's founding and growth.





Fig. 1. A road scene near Joplin.  
Fig. 2. A fine valley in the Ozarks.

Fig. 3. North Main Street extension, Highway No. 57.  
Road and fence made from Joplin chats.  
Fig. 4. Municipal 18-hole golf course.

9,943. From 1890 to 1900 Joplin came in to her own following a national demand for lead, her principal product. Zinc or "jack" was also marketable and the mining field of Joplin supplied most of the country's need for these minerals.

From 1920 to 1930 other resources of the city and surrounding territory were developed, Joplin's geographical location making her the center of a large trade territory and her retail and wholesale establishments served a minimum of 300,000 persons. Manufacturing was introduced and in recent years agricultural and industrial pursuits have made Joplin an important city. Agriculture with dairying is a more productive industry than mining as is proved by the fact that in the most productive years mining shows less than half the valuation of the farming industry. This dispels the erroneous impression that Joplin is still a mining town only. The 1930 census showed a population of 33,454.

#### Industries

Joplin today has exhaustless agricultural, industrial, commercial and mineral resources; a delightful climate; sparkling streams of pure spring water; scenery; highly intelligent and enterprising citizens, and highways and railroads radiating in every direction. Joplin has the advantages and luxuries

of a metropolitan city—daily newspapers; telegraph and telephone; paved streets all over the city; water, gas and electricity brought to every door; beautiful churches; a massive new school building; attractive residences; palatial hotels and theaters including a Fox Theatre with a seating capacity of 2,000; a 450-room hotel unequaled in any city of less than 100,000; a wonderful park system totaling over 1,000 acres with every provision and device for amusement; banks, stable throughout all depressions; manufactories including two that are premier in their class in the United States (leather novelties and lead products); vineyards, orchards and nurseries. A million and a half dollar program for school improvements is now nearing completion which will give the city a thoroughly modern school system.

#### Hospitals

Joplin has two Class A hospitals approved by the American Medical Association and the American College of Surgeons and staffed by the physicians of the district.

St. John's Hospital was organized in 1896 by the Sisters of Mercy with the help of Gilbert Barbee, one of the leading citizens of Joplin. It was first housed in a wooden structure donated by Mr. Barbee. At that time there was no hos-



Fig. 5. Main Street.

pital in Joplin, the nearest one being in Fort Scott, Kansas, a distance of sixty-five miles.

The present site was donated by Mr. Patrick Murphey and the first part of the present structure, a stone building of 40 rooms, was erected in 1898. In 1913 a building containing 60 rooms and a solarium was added which with equipment was valued at \$150,000. About ten years later another wing, modern in every particular, was built, thus giving Joplin a hospital with a 120-bed capacity completely equipped to meet the requirements of present-day hospital treatment and management. It has all the modern facilities demanded for the several departments from surgery to physical therapy, including radium treatment, and a fully accredited training school for nurses. It is staffed by capable members of the profession in Joplin and is approved by the American Medical Association and the American College of Surgeons.

Freeman Hospital was organized in 1923. The first gift was made by Mr. and Mrs. J. W. Freeman in memory of their son, Orley A. Freeman, the institution receiving its name as a memorial to this son. The gift consisted of the Freeman



Fig. 7. St. John's Hospital.



Fig. 8. Freeman Hospital.

home, a very spacious residence which it was thought could be used without erecting other buildings. It soon became evident that the structure would not be large enough for hospital purposes so the opening of the institution was postponed until a larger unit could be built.

The present building was erected in 1924 and opened for the reception of patients in June 1, 1925. It was then equipped for 75 beds but in 1930 a special ward for children was added giving the institution a 100-bed capacity. It has well



Fig. 6. Sky line of a part of business section.



Fig. 9. Three-mile parade opening holiday season.





Fig. 10. Mining lead and zinc.

equipped departments for surgery, obstetrics, roentgen ray, deep therapy and radium and physical therapy.

Technically the hospital belongs to the Methodist Episcopal Church but all the protestant churches in Joplin are represented on the board of trustees and all of them have cooperated in building and maintaining the institution.

The hospital is fully approved by the American Medical Association and the American College of Surgeons and its training school for nurses is accredited by the State Board of Nurse Examiners. It is fully staffed by members of the local medical profession representing the various specialties.

The Ozark lakes, rivers and streams, many of them close to Joplin, abound in a variety of game fish ready to put up a stiff fight with the most skillful and enthusiastic follower of Izaak Walton.

Joplin is arranging a series of entertainments for the visitor which it is hoped will leave unfading memories of pleasant social contact while attending the Seventy-Fourth Annual Meeting of the State Medical Association, May 11 to 14. The members, wives, children and friends will find a welcome awaiting them.

## CORRESPONDENCE

### BEWARE THIS SOLICITOR

St. Joseph, Mo., March 30, 1931.

To the Editor:

On February 23, this year, a solicitor victimized a number of physicians in St. Joseph. His plan was to solicit subscriptions to *Harper's* and other magazines and to offer sets of books as premiums. The subscription blank called for the payment of \$9.70 in ninety days. He was supplied with blanks, samples of binding and everything to indicate that he was a bona fide magazine salesman.

After he had secured the signature on the subscription blank, he explained in an indifferent manner that if the subscriber cared to pay cash, or by check, there was a discount of \$1.00, and the check could be made payable to "Harper Brothers Publishing Co.," the name printed on the subscription blank. The doctors "fell for it" and the next day he cashed the checks at a local bank and departed. He used the name of T. T. McLean while here but has also used the name Leroy Dale.

Correspondence with the National Publishers Association, 15 West 37th St., New York, indicates that this person has been defrauding physicians in the Middle West for several months.

M.D.

## CANCER OF BREAST

Hugh H. Trout and C. H. Peterson, Roanoke, Va. (Journal A. M. A., Nov. 1, 1930), analyzed 341 cases of histologically proved carcinoma of the breast, all having had a Halsted radical operation. This series he divided into three groups as follows: 1: From 1909 to 1920 there were 152 cases, and in this series only the radical operation, as advocated by Halsted, was done. At the end of five years, thirty-two, or 22 per cent, of the patients were alive and apparently free from recurrences or metastases. 2. Starting in 1920, they began the placing of tubes containing radium in the field of operation and under the skin after the radical removal of the breast. They continued this method until 1924, and during this period there were eighty cases. Twenty-four, or 30 per cent, of these patients were alive and without recurrences after five years. 3. In 1924 they started the practice of adding high voltage roentgen exposures to the radical operation with the implantation of radium as previously mentioned. In this group there were 109 cases, only 18 of which have had their operations longer than five years. Ten, or 55 per cent, of these patients are alive and as yet without recurrences. From a follow-up of their cases, they find that the results have improved since the employment of postoperative irradiation, but they do not feel that such improvement is entirely due to the irradiation but rather to cancer education. However, they feel that postoperative irradiation is of distinct value and should be employed as a routine. They have seen no ill effects from postoperative irradiation, though they realize that unless a surgeon is careful he may relax in the thoroughness with which he does a radical excision, hoping that such irradiation will perhaps compensate for his dereliction. They believe that the placing of tubes of radium under the skin at operation followed by sufficient and properly directed roentgen treatment is the best manner of giving postoperative irradiation. Not enough time has elapsed to estimate the results of the newer roentgen treatment, but there are many indications that with the methods now in vogue the beneficial results of postoperative irradiation will be more definite. It has never been proved that properly given postoperative irradiation is harmful; it is generally believed that irradiation is helpful in other parts of the body, and 89 per cent of the surgeons and 91 per cent of the radiologists who replied to a questionnaire assume that postoperative irradiation is beneficial as the adjunct to surgical treatment of carcinoma of the breast. Therefore Trout and Peterson believe that the patient should be given the benefit of postoperative irradiation as a routine.

## SOME NEWER REMEDIES IN TREATMENT OF PERNICIOUS ANEMIA

Raphael Isaacs and Cyrus C. Sturgis, Ann Arbor, Mich. (Journal A. M. A., Aug. 23, 1930) assert that dried, defatted hog stomach may be used as a therapeutic agent in inducing and maintaining a remission in patients with pernicious anemia. A remission may be induced with dried material (15 Gm.) corresponding to 100 Gm. of fresh stomach, and the remission may be maintained with 7 Gm. of this material. However, a safe clinical dosage is 10 Gm. for each million red blood cell deficit in the red blood cell count. The maintenance dose is 10 Gm. from five to seven times a week. So far no gross differences have been noted in the clinical features of the liver-induced remission and that after stomach therapy.

## MISSOURI STATE MEDICAL ASSOCIATION

### 74th Annual Meeting, Connor Hotel, Joplin

The 74th Annual Meeting of the Association convenes at Joplin, Monday, Tuesday, Wednesday and Thursday, May 11, 12, 13, and 14. The House of Delegates will convene Monday, May 11, and hold its first session when a large part of the business of the Association will be transacted without interfering with the scientific proceedings on the following days. Tuesday night has been set aside for the addresses of the President, the President-Elect and our guests.

### HOUSE OF DELEGATES

#### Connor Hotel

First Meeting—Monday, May 11, 1931—9:30 A. M.

#### Order of Business

Roll Call.

Reading of Minutes of Previous Meeting.

Reading of President's Message and Recommendations.

Appointment of Reference Committees—

Committee on Amendments to the Constitution and By-Laws.

Committee on Resolutions.

Committee on Miscellaneous Affairs.

Report of Committee on Arrangements.

Report of Secretary.

Report of Treasurer.

Report of Committee on Scientific Work.

Report of Committee on Public Policy.

Report of Committee on Publication.

Report of Committee on Defense.

Report of Committee on Medical Education and Hospitals.

Report of Committee on Postgraduate Course.

Report of Committee on Medical Economics.

Report of Committee on Constitution and By-Laws.

Report of Special Committees—

Insurance and Memory Funds, Frank I. Ridge, Kansas City, Chairman.

McAlester Memorial Foundation, A. R. McComas, Sturgeon, Chairman.

Military Committee, Lee D. Cady, St. Louis, Chairman.

Appointment of Committee on Nominations.

*Recess till 3:00 P. M.*

Report of the Council.

Report of Reference Committees.

New Business (Resolutions, Memorials, etc.)

Selection of Place of Next Meeting.

Second Meeting, Wednesday, May 13, 1931—3:45 P. M.

Reading of Minutes.

Election of Officers:

Election of President-Elect.

Report of Committee on Nominations.

Installation of President.

Nominations for Standing Committee by President and Confirmation by

House of Delegates.

Unfinished Business.

### GENERAL MEETING

Tuesday, May 12, 1931—8:30 A. M. Connor Hotel

Hypothyroidism in Young Women.....Edgar D. Baskett, M.D., Columbia

Treatment of Thyroid Disorders With Iodine.....

.....Kerwin W. Kinard, M.D., Kansas City

Dysfunction of the Thyroid Gland. Lantern Slides.....

.....E. P. Sloan, M.D., Bloomington, Ill.

The Hypo-Ovarian Syndrome.....August A. Werner, M.D., St. Louis

Selective Pneumothorax. A Review of the Literature and a Report Based

Upon the Study of 89 Cases. Lantern Slides.....

.....Andrew C. Henske, M.D., and Charles W. Ehlers, M.D., St. Louis

Surgery of Pulmonary Tuberculosis.....James L. Mudd, M.D., St. Charles

Tuberculosis of Joints. Conservative Plan of Treatment With Presenta-

tion of Patients.....C. Wilbur Mercer, M.D., Kansas City

Search for Tuberculosis in School Children: Importance to the Child, to

the Parent and to the Community.....Howard H. Bell, M.D., St. Louis



Tuberculosis in Children: Its Diagnosis and Prognosis.....	Scott P. Child, M.D., Mount Vernon
Determination of Activity in Tuberculosis.....	George D. Kettelkamp, M.D., St. Louis

### GENERAL MEETING

Tuesday, May 12, 1931—1:30 P. M. Connor Hotel

Cervical Cord Tumors. Report of a Cord Tumor Extending From Second Cervical Spine Segment Through the Foramen Magnum and Into the Posterior Fossa. Recovery.....	Roland M. Klemme, M.D., St. Louis
Symposium on Traumatic Surgery:	
Diagnosis and Management of Trauma of the Brain.....	F. R. Teachenor, M.D., Kansas City
Diagnosis and Management of Injuries to the Spinal Cord.....	W. E. Leighton, M.D., St. Louis
Diagnosis and Management of Injuries to the Chest.....	O. B. Zeinert, M.D., St. Louis
Diagnosis and Management of Injuries to the Abdomen.....	Robert F. Hyland, M.D., St. Louis
Recent Additions to the Armamentarium for Fracture Reduction and Retention.....	E. P. Heller, M.D., Kansas City
Treatment of Fractures of the Upper End of the Femur.....	J. Edgar Stewart, M.D., St. Louis
Intestinal Obstruction.....	Alton Ochsner, M.D., New Orleans, La.
Breech Presentation. Lantern Slides.....	E. Lee Dorsett, M.D., St. Louis
Bandl's Ring.....	George F. Pendleton, M.D., Kansas City
Spinal Fusion by the Tunneling Method. Motion Pictures.....	S. A. Grantham, M.D., Joplin

### GENERAL MEETING

Session Open to the Public

Tuesday, May 12, 1931—7:30 P. M. Connor Hotel

Address of the President.....	Wenzel C. Gayler, M.D., St. Louis
Address of the President-Elect.....	J. Frank Harrison, M.D., Mexico
Twenty-Five Years of Medical Progress.....	Morris Fishbein, M.D., Chicago, Ill., Editor of The Journal of the American Medical Association
What One Should Expect of the Physician and Surgeon.....	Alton Ochsner, M.D., New Orleans, La., Professor of Surgery, Tulane University Medical School

### GENERAL MEETING

Wednesday, May 13, 1931—8:30 A. M. Connor Hotel

The Irritable Colon (Spastic Colon).....	C. E. Gilliland, M.D., and E. S. Sigoloff, M.D., St. Louis
Symposium on Appendicitis:	
Definite Appendiceal Symptomatology..	Walter Baumgarten, M.D., St. Louis
Postoperative Complications of Appendicitis..	D. S. Conley, M.D., Columbia
Causes of High Mortality in Appendicitis...H. A. Lowe, M.D., Springfield	
When Not to Operate on a Case of Acute Appendicitis.....	E. Lee Miller, M.D., Kansas City
Treatment of Appendicitis in Its Two Phases: Before and After Perforation.....	J. E. Stowers, M.D., Kansas City
The So-Called Chronic Appendix.....	A. E. Hertzler, M.D., Kansas City
As a Pathologist Views the Appendix....	F. C. Helwig, M.D., Kansas City
Some Facts in Regard to Surgical Shock.....	G. S. Foster, M.D., Manchester, N. H.
Early Diagnosis and Treatment of Acute Anterior Poliomyelitis.....	Carl R. Ferris, M.D.; B. Landis Elliott, M.D., and Paul F. Stookey, M.D., Kansas City
Persistent Hereditary Edema of the Legs—Milroy's Disease.....	James Harvey Jennett, M.D., Kansas City

### GENERAL MEETING

Wednesday, May 13, 1931—1:30 P. M. Connor Hotel

The Control of the Coronary Arterial Blood Supply in Relation to Angina Pectoris.....	Charles W. Greene, Ph.D., Columbia
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Symposium on Heart Disease:

Prognosis of Heart Disease.....Ralph W. Holbrook, M.D., Kansas City  
The Clinical Picture of Heart Disease....P. T. Bohan, M.D., Kansas City  
Treatment of Heart Disease.....A. E. Strauss, M.D., St. Louis  
Mechanical Aids in Diagnosis of Heart Disease.....

.....S. B. Grant, M.D., St. Louis

Discussion opened by Dr. Sinclair Luton, St. Louis

Hernia of the Bladder.....Dudley A. Robnett, M.D., Columbia

Suprapubic Prostatectomy Under Vision With Reconstruction of the Bladder Neck.....Clinton K. Smith, M.D., Kansas City

At 3:45 p. m. the General Meeting will adjourn and the House of Delegates will convene.

**GENERAL MEETING**

**Thursday, May 14, 1931—8:30 A. M. Connor Hotel**

The General Practitioner, Guardian of Public Health.....

.....Julius Lingenfelder, M.D., Hermann

Nonvenereal Prostatitis.....Otto J. Wilhelmi, M.D., St. Louis

The Modern Operation for Cancer of the Breast.....

.....Jabez N. Jackson, M.D., Kansas City

Sinusitis in Children.....O. S. Gilliland, M.D., Kansas City

Headache; Its Cause and Relief.....M. F. Arbuckle, M.D., St. Louis

Basal Metabolism in Middle Ear Catarrh..C. Souter Smith, M.D., Springfield

Massive, Spontaneous Hemorrhages Into the Vitreous Humor and Iritis,

Both Eyes, Accompanying the Schönlein-Henoch Syndrome; Report of

a Case.....Joseph W. Love, M.D., Springfield

Trachoma in Missouri.....

C. E. Rice, M.D., Rolla, P. A. Surgeon in Charge of Trachoma Preven-

tion, U. S. Public Health Service.

Motion Pictures on Anatomy and Physiology.....

H. B. Kellogg, Ph.D., M.D., and W. F. Windle, Ph. D., Department of

Anatomy, Northwestern University, Chicago.

By Courtesy of the Petrolagar Laboratories, Chicago, Ill.

**GENERAL MEETING**

**Thursday, May 14, 1931—1:30 P. M. Connor Hotel**

Carcinoma of the Colon: Report of Occurrence in Young Adult.....

.....Claude J. Hunt, M.D., Kansas City

Improved Method of Early Diagnosis of Defects in the Colon. Lantern

Slides.....Paul C. Schnoebelen, M.D., St. Louis

Abdominal Allergy.....Lee Pettit Gay, M.D., St. Louis

Epithelioma.....O. H. McCandless, M.D., Kansas City

True Pruritus Ani.....William R. Beatie, M.D., Springfield

**TWENTY-THIRD ANNUAL MEETING OF MISSOURI SOCIETY  
OF MEDICAL SECRETARIES**

**Wednesday, May 13, 1931—6:00 P. M. Connor Hotel**

President, Dr. C. D. Humbert, Barnard.

Vice President, Dr. H. B. Goodrich, Hannibal.

Secretary, Dr. J. T. Hornback, Nevada.

**PROGRAM**

Address of Welcome.....Dr. Charles D. Humbert, Barnard, President

Address.....Dr. W. C. Gayler, St. Louis,

President, Missouri State Medical Association

Report on Council.....Dr. A. R. McComas, Surgeon,

Chairman of Council, Missouri State Medical Association

Report on Legislation.....Dr. E. J. Goodwin, St. Louis,

Secretary-Editor, Missouri State Medical Association

Election of Officers.

**COMMERCIAL EXHIBITORS**

**Connor Hotel**

General Electric X-Ray Corporation. X-Ray Equipment.....St. Louis  
Fremont Canning Co.,

Gerber Products Division. Vegetables for Baby.....Fremont, Mich.

Mead Johnson & Company. Infant Diet Materials.....Evansville, Ind.

Petrolagar Laboratories. Petrolagar.....Chicago

The Medical Protective Company of Fort Wayne, Indiana. Malpractice

Insurance ..... Chicago



## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

### CHRISTIAN COUNTY MEDICAL SOCIETY

The March meeting of the Christian County Medical Society was held at Ozark on March 12.

The scientific program was provided by Dr. H. J. Wise, Sparta, who read a paper on "Obstetrics: When Cæsarean Section is Advisable," with case reports.

This subject was discussed by Drs. F. H. Brown, Billings; L. G. Hummel, Sparta, and R. R. Farthing, Ozark.

The election of officers for 1931 was held and resulted in the following being elected: President, Dr. W. B. Wasson, Nixa; vice president, Dr. R. R. Farthing, Ozark; secretary-treasurer, Dr. F. H. Brown, Sparta; delegate, Dr. H. J. Wise, Sparta; alternate delegate, Dr. R. R. Farthing, Ozark.

F. H. BROWN, M.D., Secretary.

### EIGHTH COUNCILOR DISTRICT

The Eighth Councilor District held a meeting at Lindenwood College, St. Charles, on March 18. On the invitation of the Rev. John Lincoln Roemer, D.D., president of the college, all sessions were held in the college buildings and a series of entertainments provided by Dr. and Mrs. Roemer made the occasion a delightfully happy event for every visitor.

With the physicians of the Eighth Councilor District in session at Lindenwood tradition was voiced which links this one hundred and four-year-old college for women with the medical profession. Dr. B. Kurt Stumberg, St. Charles, Councilor of the District, is a member of the board of directors of the college, and so before him was his father, the late Dr. John Stumberg, who served the college for 30 years. The son's term of directorship has almost reached 30 years so that the two together have been advisers of the college through a period of almost 60 years. Dr. B. Kurt Stumberg is also college physician and a member of the faculty. Another physician who has long served on the board of directors is Dr. Emmett P. North, of St. Louis. Dr. North was fittingly selected to respond to President Roemer's address of welcome when the convention assembled at 3:30 o'clock in Roemer Auditorium.

Dr. Arthur J. Cramp, Chicago, director of the Bureau of Investigation of the American Medical Association, who was the principal speaker at the convention, gave an address illustrated with numerous lantern slides entitled "Pink Pills for Pale People."

In order to make it possible for the students to attend this lecture which was scheduled to begin at 11:00 o'clock every class hour of the morning was shortened fifteen minutes. The students were all present and with the physicians and their wives made an audience of more than 500 people. The lecturer told of the tricks of quacks and patent medicine venders in terms amusing as well as informing. The girls showed manifest enjoyment of the talk which required an hour for its delivery.

At the conclusion of Dr. Cramp's address the guests were escorted through the various buildings. President and Mrs. Roemer had asked those students who were daughters or granddaughters of physicians to act as a reception committee to the wives of the physicians in attendance and it was found that thirty-two of the approximately 500 students from 30 states qualified. Their names and residences appear in the legend under the group picture. Escorted by President and Mrs. Roemer and the reception committee the guests visited the Home Economics Department where all the arts of dietetics and household management, as well as the theory of clothing and the making of clothes, are taught. In Roemer Hall the guests visited the four floors of class rooms for teaching science, languages, art, oratory and expression, music, Bible, sociology, psychology, and other branches of study, as well as the bank, the post office and the various administrative offices.

Roemer Hall, a magnificent structure costing \$500,000, was named for Dr. Roemer a decade ago on petition of the student body. Dr. Roemer has served Lindenwood as president for 17 years, a longer period than any preceding president in Lindenwood's century-old history. Butler Hall named for a benefactor who gave \$4,000,000 to the college was next visited where a swimming pool adds to the pleasures of the physical exercise required of every student. Then came an inspection of Sibley Hall. The physicians were much interested in the Infirmary, a well-equipped 15-bed hospital in one wing of this building. Sibley Hall was named for Major George C. Sibley, United States Army, and his wife, Mary Easton Sibley, daughter of Judge Rufus Easton, friend of President Jefferson. In 1827, Major and Mrs. Sibley turned their estate, "Linden Wood" on the present college site, into a school for girls which marks the foundation of Lindenwood College.

At 3:30 o'clock in the afternoon the entire student body and the visitors gathered in Roemer Hall and listened to the inspiring address of welcome by President Roemer. The response was delivered by Dr. Emmett P. North in which he fittingly expressed the appreciation of the members of the Councilor District for the courtesies extended by President and Mrs. Roemer. The cordial relation that has grown up between the college and the medical profession was, he said, a tribute to the wise policy of President Roemer in supervising the physical welfare of the students.



Fig. 1. At the extreme left, front row, is Dr. B. Kurt Stumberg; in the center is Dr. Emmett P. North and to his left are Dr. Arthur J. Cramp, of Chicago, and President Rocmer. Between Dr. North and Dr. Cramp, in the top row immediately behind them, is Dr. Goodwin. Scattered here and there in the group are students whose fathers or grandfathers were physicians, and who constituted the reception committee. These are: Misses Ann Armstrong, Kirkwood, Missouri; Miriam Ashcraft, Little Rock, Arkansas; Doris Bomford, Miami, Oklahoma; Pauline Brown, Leavenworth, Kansas; Sarah Burgess, Larned, Kansas; Katherine Ann Disque, St. Joseph, Missouri; Mary Heard, Arkansas City, Kansas; Marjorie Filkins, Jefferson Barracks, Missouri; Doris Fisher, Kansas City, Kansas; Mariette Gates, La Plata, Missouri; Ruth Gibbs, Las Vegas, New Mexico; Mary Margery Lewis, Fairmont, West Virginia; Mary Cathrine Martin, Blytheville, Arkansas; Eugeneia Martyn, Council Bluffs, Iowa; Anna Jane Harrison, Benton City, Missouri; Betsy Holt, Fort Smith, Arkansas; Grand Island, Nebraska; Marion Pray, Lake City, Iowa; Helen Smith, Hannibal, Missouri; Wilma Jane Stepicous, Pine Bluff, Arkansas; Virginia Sterling, Maplewood, Missouri; Ione Nichols, Stumberg, St. Charles, a teacher; Lee Stone, Peoria, Illinois; Mary and Nelle Thomas, Webbbers Falls, Oklahoma; Jeanette Trusler, Yates Center, Kansas; Anna Wray Van Orden, Kansas City, Missouri; Mary Weiss, Evansville, Indiana; Nell Wilkes, Little Rock, Arkansas.



### The Medical Meeting

The physicians assembled in Sibley Chapel at 4 o'clock with Dr. B. Kurt Stumberg, St. Charles, Councilor of the District, in the chair. Dr. Stumberg, in opening the meeting, said he was highly gratified by the large attendance of physicians in the District particularly as this was the first councilor district meeting held under his councilorship.

Dr. Arthur J. Cramp, Chicago, director of the Bureau of Investigation of the American Medical Association, gave the members an intimate account of the activities of the Bureau. When first established the Bureau was chiefly occupied with giving information to physicians concerning various articles offered to the profession for the treatment of diseases and only occasionally was there an inquiry from lay individuals or lay organizations. Today, he said, the major part of the Bureau's work is the result of an enormous number of inquiries received from individuals, small groups of people, and large nonmedical organizations including the press.

Dr. Frank J. Tainter, St. Charles, delivered an address on "Neuralgia of the Face." This proved highly interesting and brought out quite a number of inquiries and comments from the members.

Dr. C. P. Dyer, Webster Groves, said this meeting had proved so highly profitable as a medical gathering and so delightfully entertaining through the courtesy of President Roemer that he wanted to see the occasion repeated. He therefore moved that the meeting of the Eighth Councilor District be made an annual gathering. This motion was seconded by several and carried unanimously.

About sixty-five physicians were present. Among those who attended from points outside of the District were: Dr. J. Frank Harrison, Mexico, President-Elect of the Association; Dr. A. R. McComas, Sturgeon, Chairman of Council; Dr. Frank G. Nifong, Columbia, a former president of the State Association; Dr. Ralph W. Holbrook, Kansas City, president-elect of the Jackson County Medical Society; Dr. F. M. McCallum, Kansas City, president, State Board of Health; Dr. W. Logan Allee, Eldon, chairman of the Committee on Public Policy of the State Association, and Mr. Elmer E. Bartelsmeyer, executive secretary of the St. Louis Medical Society.

It was regretted by all that the President of our Association, Dr. W. C. Gayler, St. Louis, was prevented from attending on account of illness.

At 6:30 o'clock dinner was served in Ayres

Hall, a building named for another president. Here St. Patrick's Day colors brightened the feast and the girls wore their best frocks and sang Lindenwood songs to the delight of the doctors and the doctors' wives.

Mrs. Roemer was a charming hostess and presided with grace at a reception in Butler Hall Gymnasium where flowers and music enlivened the dance.

### GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held February 27 in the Public Library, Springfield. The following members were present: Drs. J. LeRoy Atherton, Paul F. Cole, Lee Cox, W. A. Delzell, J. E. Dewey, M. T. Edmondson, S. F. Freeman, A. W. Gifford, Robert Glynn, J. D. Musick, F. T. H'Doubler, W. E. Handley, O. C. Horst, J. D. James, T. O. Klingner, A. D. Knabb, J. W. Love, H. A. Lowe, W. P. Patterson, T. H. Romeiser, W. S. Sewell, M. C. Stone, J. Newton Wakeman, J. W. Williams, Jr., Robert F. Williams, and W. J. Wills, of Springfield. Fifteen members of the local dental society were present as guests.

The president, Dr. O. C. Horst, ordered that all business be dispensed with.

Dr. H. A. Lowe introduced the guest speakers, Mr. John T. Woodruff and Mr. Louis Reps, who spoke in behalf of raising the quota for the United States Government hospital for the criminally insane which is to be erected at Springfield.

The scientific program consisted of a symposium on "Syphilis," as follows:

Dr. John W. Williams, Jr., read a paper on "The Diagnosis of Syphilis."

Dr. W. S. Sewell discussed "The Pathology of Syphilis."

Dr. J. Newton Wakeman gave a talk on "The Treatment of Syphilis."

The papers were freely discussed by the members.

#### Meeting of March 13

The Society met in the Public Library, Springfield, March 13, with eighteen members present. A number of dentists and nurses were visitors. The guest of the Society was Dr. Ray M. Balyeat, of the Balyeat Clinic, Oklahoma City.

Dr. Balyeat read a well-prepared paper on "Allergic Diseases, Their Diagnosis and Management." Dr. Balyeat's paper included such diseases as hay-fever, asthma, urticaria, eczema, and migraine.

#### Meeting of March 27

The March 27 meeting was held in the Public Library, Springfield, with eighteen members present. Dr. Carl Hobart, St. Louis, was present as the guest of the Society.

Dr. Hobart was introduced by the president and gave a lecture on "Cataract." He also presented stereopticon pictures of various cataractous conditions which proved interesting not only to the ophthalmologist but to the general practitioner as well.

J. NEWTON WAKEMAN, M.D., Secretary.

### HOLT COUNTY MEDICAL SOCIETY

The Holt County Medical Society has elected the following officers to serve during 1931: President, Dr. John F. Chandler, Oregon; vice president, Dr. Roy R. Miller, Mound City; secretary-treasurer, Dr. O. C. Gebhart, Oregon; delegate, Dr. John M. Davis, Craig; alternate delegate, Dr. Elmer F. Kearney, Oregon.

O. C. GEBHART, M.D., Secretary.



Fig. 2. Irwin Hall, a dormitory for freshmen and sophomores.

**HOWELL-OREGON-TEXAS COUNTY  
MEDICAL SOCIETY**

The regular meeting of the medical societies of Howell-Oregon-Texas Counties was held at West Plains, February 26, with the president, Dr. J. C. B. Davis, Willow Springs, in the chair. The following members were present: Drs. J. W. Bingham, E. Claude Bohrer, P. D. Gum, R. E. Hogan, R. A. Sparks, A. H. Thornburgh, and L. E. Toney, of West Plains; J. C. B. Davis, Willow Springs; Calvin Rhea, Thayer; H. A. Thompson, Lanton; L. M. Edens, Cabool; Leslie Randall, Licking. The minutes of the last meeting were read and approved.

The scientific program consisted of case reports by several members.

Dr. Calvin Rhea, Thayer, reported the case of a woman, aged fifty-five, weight 250 pounds. She complained during the day of being unable to hold anything in her hands and her condition became aggravated by a convulsion. When the Doctor arrived he found the face drawn to one side and the patient in a stupor. After purging the patient until the bowels were thoroughly evacuated and administering alkalines she recovered in three days with no loss of function. Dr. Rhea asked the opinion of the members as to whether this was a case of embolus, thrombosis or cerebral hemorrhage.

Dr. E. Claude Bohrer, West Plains, reported three cases of congenital syphilis. He suspected syphilis in one case because the child had "sniffles" and was cross, irritable and undernourished. One case, that of an older child, had the typical saber shins. Gray powder was given, also sulpharsphenamine and later bismuth injections.

Dr. R. A. Sparks, Willow Springs, reported a case of gallstone colic. Later an abscess developed in the right groin. On draining, thirteen well formed gallstones were removed and the patient recovered.

Dr. L. M. Edens, Cabool, reported an endemic disease in forty-one children, apparently cholecystitis. The symptoms were vomiting, diarrhea and skin of a yellow hue; temperature ranged from 101 F. to 103 F. These cases occurred in one locality and Dr. Edens was unable to satisfy himself of the etiology or correct diagnosis. He said he had treated thirty-one cases of the same malady in adults within the last two years.

Dr. Leslie Randall, Licking, reported a case of acute appendicitis in a young high school student. At operation a ruptured appendix was found and on the third day following operation patient showed well developed meningitis. Serum was given and the meningitis cleared up to some extent within three days, but the patient died suddenly and unexpectedly.

Dr. R. E. Hogan, West Plains, reported a sudden death in a postoperative case. Ten days after operation patient complained of a sudden sense of "feeling queer." Dr. Hogan saw the patient immediately and administered stimulants but the patient died within seven minutes, apparently of cerebral hemorrhage.

Dr. L. E. Toney, West Plains, reported two cases of mastoiditis of only four days' duration. Each patient was operated upon and much pus evacuated. Both patients recovered.

P. D. GUM, M.D., Secretary.

**JASPER COUNTY MEDICAL SOCIETY**

The regular meeting of the Jasper County Medical Society was called to order by the president, Dr. L. C. Chenoweth, Joplin, February 24, 1931, with twenty-four members present.

Dr. Chenoweth called attention to an article in the current issue of the *Journal of the American Medical Association* discussing the proposed legislation in Missouri to abolish compulsory vaccination. Dr. Clark moved that the secretary be instructed to communicate with our representative opposing this measure. The motion was seconded by Dr. D. R. Hill, Joplin, and carried.

Letters were read by the secretary from Senator Titus and Representative Clay.

Dr. O. T. Blanke, Joplin, reported a patient with diabetes who in the last four weeks has had a high degree of obstructive jaundice.

Dr. S. H. Miller, Joplin, reported a case of peculiar skin eruption with fever that had been previously diagnosed pernicious anemia. He is to report further at a subsequent meeting.

The scientific program was provided by Dr. Paul W. Walker, Joplin, who read a paper on "Urinary Tuberculosis." He emphasized the need of recognizing the early and suggestive symptoms and making a thorough examination in order to arrive at an accurate diagnosis so that appropriate treatment may be instituted.

The paper was very interesting and was discussed by Drs. D. R. Hill, J. W. Barson, S. A. Grantham, W. S. Loveland, and Dr. Clark.

**Meeting of March 3**

The meeting was called to order with twenty-seven members and two guests present. The minutes of the previous meeting were read and approved.

Dr. J. W. Barson, Joplin, chairman of the publicity committee, reported on the work of his committee.

The secretary submitted the request of the League of Women Voters regarding the proposed child welfare legislation in Congress. Inasmuch as Congress adjourns on March 4 it was felt that any action taken at this late date would be futile, hence the matter was laid on the table.

Dr. Irwin S. Brown, Kansas City, gave a discussion of "The Significance of Hematuria." He covered the various causes in a brief, but comprehensive manner and outlined the routine procedures which should be used in determining the source. He exhibited fresh and fixed pathological specimens of the urinary tract which served to emphasize the various points brought out in his talk.

Dr. J. H. Dangle, Kansas City, read a paper on "Cardiovascular Syphilis." He based his talk on an analysis of the records of Johns Hopkins Hospital and analyzed 116 cases of aortic insufficiency and 50 cases of aortic aneurysm on which complete records and data were available. The analysis showed the unfavorable prognosis in cases having symptoms of decompensation at the time first seen and the value of early and especially adequate treatment.

Both subjects were freely discussed and after rebuttal by the speakers the meeting adjourned.

**Meeting of March 10**

Twenty-five members and five visitors were present at this meeting. The guest of the Society was Dr. Ernest G. Mark, Kansas City, who was sent to us by the Postgraduate Committee of the State Association. President Chenoweth presided.

Dr. J. W. Barson, Joplin, chairman of the publicity committee, gave a brief report of the work done by his committee toward publicity on the State Association meeting at Joplin and the invitations being sent to members throughout the State.

Dr. Ernest G. Mark, Kansas City, gave a lecture



on "Some of the Newer Methods of Urography." He reviewed the history of various media used in visualizing the upper and lower urinary tract and told of some original work begun a number of months ago. He showed that if operation followed pyelogram within forty-eight hours where either sodium bromide or sodium iodide had been used, a marked chemical pyelitis and ureteritis were present. In his experience with the present methods of intravenous urography, he said that in spite of statements to the contrary reactions of some degree were encountered in all cases. He spoke of some original observations using iopax and skioldan for retrograde pyelograms, which were accompanied by practically no reaction. This was further elaborated by experimental work on guinea pigs, rabbits and dogs, showing the effect of various media on the mucosa of the bladders in dogs. For further evidence of nonirritating properties of iopax and skioldan, vesiculography has been done and in some cases deliberate injection into the adjacent scrotal tissue made, none of which were followed by local or constitutional reaction. He showed a number of retrograde iopax pyelograms which illustrated satisfactory results.

#### Meeting of March 17

At this meeting there were twenty-five members and six visitors present. Dr. Ray M. Balyeat, Oklahoma City, was the guest of the Society. President Chenoweth presided.

The secretary brought up the plan for locating the clinical years of the University of Missouri School of Medicine in Kansas City, Missouri. The subject was discussed by the president. Dr. J. W. Barson, Joplin, moved that the Society support the proposition that the last two years of medicine be provided in Kansas City. The motion was seconded by Dr. J. L. Sims, Joplin. The vote by acclamation was uncertain; by show of hands the motion carried 8 to 5.

The secretary presented a list of available films provided by the Petrolagar Laboratories with the request that the members indicate their choice. A motion was made, seconded and carried, that a committee be appointed to select the films to be shown. Dr. J. L. Sims, Joplin, was appointed chairman of the committee to work with Drs. H. L. Wilbur and R. M. James, of Joplin.

Dr. M. B. Harutun, Joplin, City Health Commissioner, suggested that the Society conduct a health survey of the school children similar to the dental survey just completed by the dental society. After some discussion a motion was made by Dr. R. E. Myers that the president appoint a committee to investigate and outline a plan for this survey and report at the next meeting. The motion was seconded by Dr. H. L. Wilbur and carried. The president appointed Dr. R. E. Myers, chairman, Drs. M. B. Harutun and W. H. Mallory, of Joplin, as the committee.

The scientific program was provided by Dr. Ray M. Balyeat, of Oklahoma City, who discussed the subject of "Allergy With Reference to Hay-Fever, Asthma, and Particularly Migraine." His lecture, a thorough and comprehensive review of the subject, was well illustrated with colored motion pictures and colored lantern slides. It was followed by considerable formal and informal discussion.

#### Meeting of March 24

The meeting was called to order by the president, Dr. L. C. Chenoweth, Joplin. The minutes of the

meetings of March 10 and March 17 were read and approved.

A communication from the Seventh Corps Area Headquarters was read requesting that a committee of three members be appointed to work with the Area Medical Reserve in maintaining the strength of the Medical Reserve. Dr. R. E. Myers moved that the plan be accepted. The motion was seconded by Dr. Leroy W. Baxter and carried. The president appointed Drs. R. E. Myers, K. B. Huffman and G. I. Meredith as the committee.

Dr. M. B. Harutun, City Health Commissioner of Joplin, presented the plan for the health survey of school children. This was discussed by the president, Dr. L. C. Chenoweth, Joplin. Dr. S. H. Miller expressed a desire to know whether the city and county physicians were doing their duty toward the care of the poor. Dr. A. B. Clark proposed that an effort be made to have one full-time physician for the city and county work, the physician to be given reasonable compensation.

An interesting and entertaining discussion on the various phases of charity work from a negative standpoint was given by Drs. Leroy W. Baxter, S. H. Miller and S. A. Grantham. They spoke freely about the promiscuous giving of services where not appreciated and about the large amount of charity work done. It was moved by Dr. Martin, seconded by Dr. Clark, that the discussion be continued at the next meeting. Motion carried.

Dr. Martin read a comprehensive paper on "Infant Feeding" which was enjoyed by all the members. The subject was discussed by Drs. Clark, Myers, Miller, Huffman, Sims, Chenoweth, and Grantham.

#### Meeting of March 31

President Chenoweth called the meeting to order with seventeen members and one visitor present. The minutes of the previous meeting were read and approved.

The committee on the proposed health survey of school children had no report to make, but the subject came up for consideration. After some discussion Dr. J. A. Chenoweth moved that the secretary be instructed to write a letter to the Joplin members advising them of the proposed plan and asking for an expression of their willingness to participate in the survey. Motion seconded by Dr. J. L. Sims and carried.

On motion by Dr. A. B. Clark, seconded by Dr. H. L. Wilbur and carried, a poll was taken of the attitude of the members present. A majority expressed their unwillingness to participate.

The chairmen of the local committees on arrangements read preliminary reports indicating that the work is progressing satisfactorily for the State meeting.

Dr. S. A. Grantham moved that the Society pay for the postage on the invitations for the State meeting in the event the Chamber of Commerce would be unable to meet the expense.

The secretary announced that plans are being made for the organization of a physicians' telephone exchange in Joplin and requested the members to be prepared to discuss the proposition when the representative calls on them.

Dr. S. H. Miller, Joplin, referred to the case of peculiar skin eruption with fever which he had reported at a previous meeting. He said that three days after he made the report the patient died, Dr. Miller still considers the case one of pellagra.

Dr. S. A. Grantham, Joplin, reported a case of a

back injury referred to him one and one-half years after injury in which nerve degeneration was too permanent to respond to treatment. This case emphasizes the value of early relief of cord pressure.

Dr. O. T. Blanke, Joplin, reported a patient with diabetes of several years' duration who later developed an acute jaundice and died. Necropsy showed a malignancy of the pancreas.

Dr. W. S. Loveland, Joplin, reported a case of diarrhea, vomiting and prostration in a diabetic apparently due to an overdosage of insulin.

Dr. B. E. DeTar, Joplin, reported the case of a miner who had a bruise to his shoulder with local abscess formation which was incised and drained. An osteomyelitis of the outer third of the clavicle and later of the acromial process developed. Following this the patient suffered an attack of pneumonia and now has an osteomyelitis of the inner third of the clavicle. Each subsequent phase developed as the patient was about to recover from the preceding phase. Dr. H. D. McGaughey discussed this case.

O. T. BLANKE, M.D., Secretary.

## THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of November 21, 1930

### HYPERTENSION AND NEPHRITIS.\*—

By DR. E. T. BELL, Minneapolis.

The following classification is suitable to both clinician and pathologist:

1. Nephrosis:
  - A. Chemical. 1. Corrosive sublimate, etc. 2. Experimental.
  - B. Infectious.
  - C. Pregnancy.
  - D. Amyloid.
2. Glomerulonephritis:
  - A. Focal. 1. Embolic. 2. Benign hemorrhagic.
  - B. Diffuse. 1. Acute: proliferative, exudative, extracapillary. 2. Subacute. 3. Chronic: contracted, noncontracted (lipoid nephrosis).
3. Hypertension kidney:
  - A. Without renal insufficiency.
  - B. With renal insufficiency. 1. Slowly progressive type. 2. Acute fulminating type.
4. Exudative interstitial nephritis:
  - A. Acute interstitial nephritis.
  - B. Pyelonephritis. 1. Hematogenous. 2. Urinogenous.

Most physicians when speaking of nephrosis refer only to the lipoid type, but in this classification nephrosis represents an essentially degenerative process while nephritis means an inflammatory lesion. Chemical nephrosis is characterized by albuminuria followed by oliguria and anuria. Hypertension may appear and tubular degeneration is found. Infectious nephrosis, common in infections, such as pneumonia, is characterized clinically by "febrile" albuminuria and pathologically by cloudy swelling. The nephroses of pregnancy represent toxemias, such as eclampsia, and are characterized by albuminuria, hypertension, convulsions and sometimes edema. Renal function is good in these three groups. An acute glomerulitis may be present.

In the group of amyloid nephrosis, which is usually associated with a chronic suppurative process, hyper-

tension may develop and 50 per cent end in uremia. Glomerulonephritis must be differentiated largely by the history.

In glomerulonephritis, the inflammatory process involves chiefly the glomeruli with increase in the leukocytes and intercellular exudate. Focal glomerulonephritis indicates involvement of only a few glomeruli and the embolic type is secondary to bacterial endocarditis. The only renal symptom may be hematuria. If the patient develops uremia a diffuse type of involvement must have transpired. My impression of the benign hemorrhagic type of focal glomerulonephritis which occurs in young patients who have sore throat and in which the only renal symptom is hematuria, is that the glomerular capillaries rupture and bleed, and glomeruli that bleed are the least hurt. The prognosis is excellent.

Acute diffuse glomerulonephritis is characterized by albuminuria, edema, early hypertension, and often by hematuria. The patient may die with uremia, recover, or go into a state of chronic glomerulonephritis. The pathological picture is one of a large white kidney with large glomeruli, decreased blood and increased nuclei in the glomeruli. The nuclei are those of leukocytes, endothelial cells, and a few of epithelial cells.

Subacute diffuse glomerulonephritis is a condition which ends in uremia after a period of several months.

Patients with chronic glomerulonephritis eventually die with uremia as more glomeruli become involved. The picture is traceable from the acute stage by means of a stain that reveals the basement membrane between epithelium and glomerular endothelium. Fibers that eventually are collagen in nature connect with the basement membrane and appear between the proliferated endothelial cells. These increase in number and density forming a hyaline mass in the chronic stage and leaving only small apertures through which the blood in the glomeruli may pass. In secondary contracted kidneys, part of the glomeruli with their corresponding tubules have changed completely, others have been damaged by endothelial thickening, and a few large glomeruli may show characteristic fat in their tubules like that seen in lipoid nephrosis.

Lipoid nephrosis is characterized by low plasma protein and cholesterolemia without renal insufficiency, hematuria or hypertension. There are few pure cases, and the mixed type with hypertension or insufficiency eventually die from uremia. The kidneys are large, smooth, yellow, the glomeruli show part of the changes of a glomerulitis and the tubules contain fat.

Hypertension may be secondary to exertion, sensory stimuli, increased intracranial pressure, or numerous types of renal disease such as glomerulonephritis, eclampsia, bichloride poisoning, polycystic kidneys, obstruction, amyloid kidneys, or arteriole degeneration. All have narrowed capillary vessels in the glomeruli.

Primary hypertension is a common cause of death but is usually listed by health department rules as chronic myocarditis, Bright's disease, apoplexy, or disease of the coronary arteries. Clinically it is commoner in women but is a more frequent cause of death in men. Of all cases of primary hypertension, 65 per cent develop heart disease and 10 per cent renal insufficiency. No renal change whatever is found in 10 per cent. Renal death is due to disease of the renal arteries with consequent glomerular involvement. There is an increase in the elastic tissue of the intima and an increased thickness of the capil-

\* From the Department of Pathology, University of Minnesota Medical School, Minneapolis.



lary basement membrane eventually involving the glomeruli. In the malignant type there may be necrosis of the afferent arterioles and thrombosis of the glomeruli.

## DISCUSSION

DR. R. H. MAJOR: I asked Professor Vollhard when there would be a new edition of his book and he replied, "Ja, das weiss der lieber Gott!" He had had to rewrite parts of it time and again because of the continual changing of his ideas of kidney disease.

It is difficult to create a classification which will satisfactorily fit all cases. I am not entirely in agreement with all of Dr. Bell's points. Clinical as well as pathological considerations have weight, and I am not sure that I grasp the distinguishing features between degeneration and inflammation when only a matter of time may separate one process from the other. Nephrosis may be a tubular nephritis. I agree that pure lipoid nephrosis is rare.

How does Dr. Bell explain the lack of hypertension and glomerulonephritis in China?

DR. F. C. NARR: I should like to emphasize that the urine-productive function of the kidney is in the glomeruli. How does Dr. Bell explain that in chemical nephrosis renal insufficiency may develop?

DR. H. R. WAHL: I am not entirely satisfied with the mixing of clinical and anatomical classifications. Group 3 is a clinical group while the rest are anatomical. This group might be termed the arteriosclerotic kidney.

DR. BELL, in closing: I do not deny that lipoid nephrosis is a nice clinical entity for discussion, but is it a clinical disease or essentially an anatomical renal disease? Epstein thought it a constitutional disease. About 50 per cent recover. Dr. Keith at Rochester states that 25 per cent of nephritics are nephrotics, largely on a basis of whether or not edema is present. My point is that histologically it resembles glomerulitis but that there is not complete closure of the glomeruli. Lipoid nephrosis has been known for years as parenchymatous nephritis or non-contracted kidney of nephritis.

Inflammation is an exudative or proliferative phenomenon of the fixed tissue cells.

Tubular disease does not cause death except in chemical nephrosis. The glomeruli are poisoned so that the urine does not pass through.

The lack of hypertension in the Chinese is probably a racial characteristic.

In regard to Dr. Wahl's comment, I believe the pathologist should stay closer to the clinician or there may be a wide break, as has occurred in the past.

Chronic glomerulonephritis with hypertension developing secondarily may not be recognized clinically. It progresses by repeated infections and at first it may not be known because the albuminuria and hypertension are inconstant, but as the case is followed, remissions and recurrences finally betray its identity.

Meeting of December 19, 1930

## INFLAMMATORY BONE DISEASE.—

By DR. H. WINETT ORR, Lincoln, Neb.

The fundamental points in the treatment of compound fractures are correct position, drainage, immobilization and protection against infection. None of these should be compromised in favor of the others. It is an inconsistency to sew up a wound and still expect good drainage or to provide for frequent change of dressings and still get good im-

mobilization; yet a medical essayist<sup>1</sup> has written, "place the part in a well-padded gutter splint, and see that reduction is well maintained,"—incompatible procedures.

The old practice has been to do frequent dressings in compound infected wounds, yet secondary infections may be directly traceable to drainage tubes, gauze packs and chemical antiseptics in many instances. The absorption of pus from a sore does not do as much mischief as it has often been credited with. Infection is only harmful if it breaks through the protective walls set up by the patient. These walls are broken through by manipulation, dressings, etc.

The Orr method of treatment involves the adequate fixation of parts in correct position before operative work is undertaken, then adequate drainage with debridement if necessary, making an effort to remain outside the granulating surfaces, and the establishment in certain roofed-over cases of a saucer-shaped opening in the bone. The wound is loosely packed with vaselined gauze so that leakage at the edge is afforded, a dry gauze cover is applied and the plaster cast put on making the wound inaccessible. Skeletal fixation by ice tongs and pins may be incorporated in the cast in suitable cases for securing adequate immobilization. Dressings are not changed for several weeks even in the presence of considerable discharge, the surgeon watching the general condition of the patient rather than focusing his attention upon the wound area only. In case a single change of dressings seems desirable to prevent neighborhood infection traveling up the wet gauze into the wound, it should be done in the operating room under aseptic precautions. The dry gauze that covered the vaselined pack may then be replaced by a clean one. Tubes and sutures are not used. Wounds are found to heal satisfactorily by granulation from the bottom up displacing the vaselined packs ahead of them.

A similar procedure is satisfactory with cases of osteomyelitis. Operation is undertaken as early as diagnosis is made and a window in the bone sufficient for drainage is packed open with vaselined gauze. Removal of large amounts of infected tissue is not necessary. The plaster spica prevents irritative motion, muscle spasm, and opportunity for secondary dressings with infection from the outside. If this method is done within ten days from the outset of infection there is seldom extensive bone necrosis, sequestrum formation, or development of secondary abscesses, and convalescence is rapid and uneventful. The type of infection seems to make little difference.

In chronic cases, sometimes with sequestra and involucrum, more extensive drainage is necessary, and there is a longer period of healing.

## DISCUSSION

DR. FRANK DICKSON: In bone infections we are not dealing with one but with several conditions, hence there is difficulty in evolving a plan of management which will fit all types. I agree with the basic principles enumerated by Dr. Orr but differ with him upon certain points in the superstructure. In acute and subacute osteomyelitis the infection is through the blood stream, and in compound fractures through the open wound. It is my opinion that the Orr method cannot be safely carried out on all cases.

I feel that in cases of acute osteomyelitis it is extremely dangerous to pack the drainage tract lightly

1. Moorhead, J. J.: Compound or Open Fractures in Traumatic Surgery, Philadelphia, W. B. Saunders Co., 1917, p. 299.

with vaselined gauze and seal it with a plaster cast. I do not see how adequate drainage can be secured when the tract is packed, and I know of several cases in which inadequate drainage through plugging of the tract has resulted disastrously. In chronic osteomyelitis with walled-off low-grade infection I admit I see no contraindication to the vaselined packs.

I believe the same thing applies to treatment of compound fractures in which infection may be fulminating, like acute osteomyelitis, or low-grade, like chronic osteomyelitis. Maintenance of alignment is of paramount importance but a plaster cast is not always essential. Efficient skeletal traction may be more advantageous.

I agree that daily packing of osteomyelitic cavities with irrigation, drainage tubes, and applications of mercurochrome by inexperienced individuals is painful and may be harmful. I also know that daily dressings with the proper Carrel-Dakin technic does not cause pain, break down granulations or retard healing. It results in a sterile wound that may be closed in about six weeks by secondary suture. But the disadvantage is the care necessary.

DR. C. B. FRANCISCO: The results obtained certainly justify the application of Dr. Orr's method in subacute and chronic cases. Infection need not be feared. When it kills it usually kills quickly and it is rare to see individuals die with long continued sepsis. In acute cases, irrigation may be resorted to, but I have little faith in sterilization. Drainage is the important element.

Some individuals cannot stand pain. In the army I saw men die with it. They were dressed by lines and knew when their time was coming. Many might have been better off if they had not been seen at all. Dr. Orr's method is the best in my hands.

DR. JAMES ELLIOTT: Dr. Orr's method has not been as satisfactory in my hands as the Carrel-Dakin method. Other patients complain of the stench. I have found skeletal traction of great advantage in compound fractures.

DR. JOHN HAYDEN: There is uniform agreement on the essential points, drainage and fixation, neither of which would be satisfactory if used alone. This applies to most types of infection.

DR. M. J. OWENS: I have devised a plan of packing these wounds. By placing a piece of rubber dam over the field and placing within this the gauze pack so that none of it touches the granulating surface, the gauze may be changed painlessly.

DR. THOMAS G. ORR: Often insufficient respect is paid to nature's pus-forming propensities. Most modern surgeons are now more conservative in opening into various types of infection. There is a greater tendency to permit infection to localize and to minimize the extent of operation. Whether or not the odoriferous method of Orr or the maggot method of Baer will become standardized in the treatment of osteomyelitis has not yet been determined. I do not believe it possible that hospitals can develop well organized maggottries to supply maggots for the Baer treatment. The materials required for the Orr method are available in any hospital.

DR. EARL PADGETT: The statement has been made that no new conception has entered into the operative care of osteomyelitis in the last twenty-five years. All the suggested variations are in the after-care. For a good result, good surgery at the correct time always precedes and if the after-care does not violate fundamental surgical principles the end-result will be about the same in the long run.

The old surgeons had a rule that when a gauze drain was used it should be changed either on the first day or not for a week or so. When damming back of drainage was feared and there was little danger from opening new lymphatic channels the gauze drain was changed early, but when there was no immediate necessity for drainage and when it seemed desirable for a limiting membrane of granulations to be formed, the drain was not changed for a week. I can see no violation of bacteriological or pathological principles if Dr. Orr should change his vaselined gauze a little oftener than he does.

DR. CARL B. SCHUTZ: I feel that neither the vaselined packs nor Dakin's solution has as much to do with the progress made as the manner in which the patient was handled at the time of operation. Both Dr. Orr and Dr. Dickson are extremely gentle and skillful operators.

DR. ORR, closing: Dr. Dickson and I are not so far apart. The Carrel-Dakin method is the last and best of the active antiseptic methods. If I had my choice between only an operation and a cast I would choose the cast.

In Baer's maggot treatment of chronic osteomyelitis, there are no stitches, drains or dressings; but it falls short on the old assumption that discharges are injurious.

#### LIVINGSTON COUNTY MEDICAL SOCIETY

The Livingston County Medical Society met at Chillicothe on March 10. This was the first meeting to be held in several years. In the absence of the president, Dr. A. Collier, Chillicothe, Dr. Reuben Barney, Chillicothe, presided.

The election of officers for the year 1931 was held which resulted in the following being elected: President, Dr. R. J. Brennan, Chillicothe; secretary-treasurer, Dr. Donald M. Dowell, Chillicothe, formerly of Kansas City; delegate, Dr. Reuben Barney, Chillicothe.

DONALD M. DOWELL, M.D., Secretary.

#### MISSISSIPPI COUNTY MEDICAL SOCIETY

The following officers have been elected to serve the Mississippi County Medical Society for 1931: President, Dr. A. H. Marshall, Charleston; vice president, Dr. E. Charles Rolwing, Charleston; secretary-treasurer, Dr. William S. Love, Charleston; delegate, Dr. A. H. Marshall; alternate delegate, E. Charles Rolwing. Censor, G. W. Whitaker, East Prairie.

W. S. LOVE, M.D., Secretary.

#### MEDICAL SOCIETIES OF BATES AND VERNON-CEDAR COUNTIES

The Bates and Vernon-Cedar County Medical Societies met at State Hospital No. 3, Nevada, Thursday evening, March 19. The guests of the Society were Drs. Minford A. Hanna and Rex L. Diveley, of Kansas City.

Dr. Hanna addressed the Society on "The Care of the Patient in Labor."

Dr. Diveley gave a talk on "Fractures of the Upper Extremity."

Both of these lectures were illustrated with motion pictures and were unusually interesting.

Dr. George Thiele, Butler, who recently underwent an operation for appendicitis, was reported convalescing.

The following were present: Drs. Rex L. Diveley and Minford A. Hanna, of Kansas City; E. N. Chas-



tain, Butler; C. W. Luter, Adrian; John S. Newlon, Butler; H. A. Rhoades, Foster; John W. Dawson and John R. Williams, of Eldorado Springs; T. D. Combs, Bronaugh; E. H. Liston, J. M. Yater, J. T. Hornback, F. L. Martin, E. H. Coon, and Dr. Grogan, of Nevada; Dr. Orr, Harwood.

The next meeting will be held in Butler, Thursday evening, April 16.

J. T. HORNBACK, M.D., Secretary.

### NEWTON COUNTY MEDICAL SOCIETY

The Newton County Medical Society recently elected the following officers to serve during 1931: President, Dr. J. R. Reynolds, Neosho; vice president, Dr. R. C. Lamson, Neosho; secretary-treasurer, Dr. J. A. Guthrie, Neosho; delegate, Dr. D. E. Cullers, Neosho; alternate delegate, Dr. C. E. Mansur, Neosho.

J. A. GUTHRIE, M.D., Secretary.

### RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society has been reorganized. A meeting was held on January 13, with the following members present: Drs. Thomas F. Cook, E. E. Gay, L. D. Greene, H. M. Griffith, E. T. McGaugh and C. B. Shotwell, of Richmond; C. H. Reed, Hardin, and Frank Bagley, Orrick.

Dr. C. C. Dennie, Kansas City, was the guest of the Society and read a paper on "The Modern Treatment of Lues."

The following officers were elected to serve during 1931: President, Dr. L. D. Greene, Richmond; vice president, Dr. E. E. Gay, Richmond; secretary-treasurer, Dr. C. H. Reed, Hardin.

#### Meeting of March 10

The next regular meeting of the Society was held on March 10. The guest of the Society was Mr. R. L. Laybourn, Jefferson City, bacteriologist and director of the State Board of Health Laboratories. The subject of Mr. Laybourn's address was "What the State Laboratories Mean to the Physicians of Missouri."

Mr. Laybourn also addressed the Kiwanis Club of Richmond at noon on March 10, his subject being "These Germs."

The following members and visitors were present: Drs. Thomas F. Cook, E. E. Gay, L. D. Greene, H. M. Griffith, E. T. McGaugh and C. B. Shotwell, of Richmond; C. H. Reed, Hardin; Frank Bagley, Orrick; Y. D. Craven, S. R. McCracken and C. H. Suddarth, of Excelsior Springs; B. T. Payne, Lexington; L. D. Stewart, D.D.S., and S. B. Aldridge, D.V.S., of Richmond; Miss Dorothy Willis, public health nurse of Cooper County.

CARL H. REED, M.D., Secretary.

### RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The regular meeting of the Randolph-Monroe County Medical Society was held on March 10 at Moberly. On account of the illness of the president, Dr. D. A. Barnhart, Huntsville, the vice president, Dr. O. K. Megee, Moberly, called the meeting to order.

Dr. Thomas S. Fleming, Moberly, proposed that a card announcement be sent to patients advising them of office hours, fees, and information in general.

Dr. L. O. Nickell, Moberly, moved that the Society go on record as favoring the proposition. Motion seconded by Dr. C. K. Dutton, Moberly. It was sug-

gested that the card announcement be made and submitted at the next regular meeting.

Dr. Max E. Kaiser, senior house surgeon at the Wabash Employee's Hospital, Moberly, read an interesting paper on "Tularemia" with report of a case.

Members present were: Drs. C. K. Dutton, L. E. Huber, F. L. Harms, O. K. Megee, L. O. Nickell, and R. D. Strector, of Moberly. Visitor, Dr. W. C. Alexander, Clifton Hill.

THOS. F. FLEMING, M.D., Secretary.

### SCOTT COUNTY MEDICAL SOCIETY

The Scott County Medical Society held its regular meeting at Benton, April 9.

The question, "How Can We Create Enthusiasm in Our Society" was discussed. It was decided to have a special program and a membership drive at our next meeting, which will be held at Sikeston, May 28, at 7:30 p. m. At this meeting we expect to have two guests to deliver lectures one on "Enterocolitis" and one on "Tuberculosis." These speakers will be furnished by the Postgraduate Committee of the State Association.

The following officers were elected for 1931: President, Dr. G. W. H. Presnell, Sikeston (reelected); secretary-treasurer, Dr. U. P. Haw, Benton (reelected). Dr. H. T. Blackledge, Commerce, was elected censor for three years.

We anticipate a good meeting on May 28 and hope every member will attend.

U. P. HAW, M.D., Secretary.

### ST. FRANCOIS-IRON-MADISON COUNTY MEDICAL SOCIETY

About twenty members of the St. Francois-Iron-Madison County Medical Society and several visitors were dinner guests of Dr. W. E. Aubuchon, Leadwood, on March 24. The dinner was served by the Ladies' Aid of the Methodist Church. The local high school orchestra played a number of selections during the dinner hour, after which Mr. Glenn Smith, superintendent of the Leadwood public schools, in a few well chosen remarks, welcomed the Society to Leadwood.

The scientific program was provided by two members of the staff of the Barnard Free Skin and Cancer Hospital of St. Louis, Drs. A. H. Conrad and L. H. Jorstad. These speakers were sent to us through the courtesy of the Postgraduate Committee of the State Association.

Dr. Conrad gave a lecture on "Drug Eruptions," illustrated with lantern slides, which was very interesting and instructive.

Dr. Jorstad read a paper on "Cancer of the Lip" in which he stressed the importance of early diagnosis and adequate treatment. The results of the radium treatment and surgery were clearly shown by the lantern slides.

The scientific program was unusually good and held the interest of all the members. The talks alone would have made a good program, but with the added feature of the lantern slides it was far above the average.

The following officers were elected for 1931: President, Dr. W. E. Aubuchon, Leadwood; vice president, Dr. D. Appleberry, Rivermines; secretary-treasurer, Dr. Van W. Taylor, Leadwood; delegate, Dr. H. M. Roebber, Bonne Terre; alternate, Dr. W. J. Bryan, Flat River.

VAN W. TAYLOR, M.D., Secretary.

## WOMAN'S AUXILIARY

### ORGANIZED COUNTIES AND PRESIDENTS OF WOMAN'S AUXILIARIES

COUNTY	PRESIDENT AND ADDRESS
Audrain.....	Mrs. William Ford, Mexico
Bates.....	Mrs. C. W. Luter, Adrian
Boone.....	Mrs. F. E. Dexheimer, Columbia
Buchanan.....	Mrs. H. W. Carle, St. Joseph
Cass.....	Mrs. R. M. Miller, Belton
Cape Girardeau.....	Mrs. G. W. Walker, Cape Girardeau
Clay.....	Mrs. C. H. Suddarth, Excelsior Springs
Cole.....	Mrs. R. P. Dorris, Jefferson City
Gentry.....	Mrs. Frank H. Rose, Albany
Greene.....	Mrs. S. F. Freeman, Springfield
Jackson.....	Mrs. R. L. Sutton, Kansas City
Jasper.....	Mrs. J. A. Chenoweth, Joplin
Johnson.....	Mrs. H. F. Parker, Warrensburg
Lafayette.....	Mrs. W. E. Koppenbrink, Higginsville
Livingston.....	Mrs. R. Barney, Chillicothe
Linn.....	Mrs. Ola Putnam, Marceline
Marion.....	Mrs. H. O. Daniel, Hannibal
Platte.....	Mrs. J. H. Winter, Parkville
Randolph-Monroe.....	Mrs. O. O. Ash, Moberly
St. Louis City.....	Mrs. G. N. Seidlitz, St. Louis
Saline.....	Mrs. L. S. James, Blackburn
Scotland.....	Mrs. P. M. Baker, Memphis
Vernon-Cedar.....	Mrs. T. B. Todd, Nevada

### WOMAN'S AUXILIARY, MISSOURI STATE MEDICAL ASSOCIATION SEVENTH ANNUAL MEETING

#### Officers 1930-1931

President, Mrs. A. W. McAlester, Kansas City.  
President-Elect, Mrs. U. J. Busiek, Springfield.  
1st Vice President, Mrs. C. M. Sneed, Columbia.  
2nd Vice President, Mrs. H. B. Goodrich, Hannibal.  
3rd Vice President, Mrs. R. S. Kieffer, St. Louis.  
4th Vice President, Mrs. W. L. Kenney, St. Joseph.  
Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.  
Auditor, Mrs. C. T. Ryland, Lexington.

#### PROGRAM

**Tuesday, May 12, 1931—9:00 A. M. Connor Hotel**

9:00 A. M.—Executive Board Meeting.

12:30 P. M.—Open Luncheon. Guests: Dr. Morris Fishbein, Chicago, Editor of the *Journal of the American Medical Association*; Dr. Wenzel C. Gayler, St. Louis, President, and Dr. J. Frank Harrison, Mexico, President-Elect of the State Medical Association; Dr. Alton Ochsner, New Orleans, and past presidents of the Auxiliary.

7:30 P. M.—Public Meeting of the Missouri State Medical Association.

**Wednesday, May 13, 1931—9:00 A. M. Connor Hotel**

9:00 A. M.—Annual Meeting.

Reports of Officers.

Reports of Chairmen.

Election of Officers.

12:30 P. M.—Luncheon at Woman's Club, Mrs. Busiek presiding. Luncheon open to all Auxiliary members and friends.

3:30 P. M.—Sight-Seeing Drive, leaving east entrance of Connor Hotel.

7:00 P. M.—Dinner at Connor Hotel. Round Table Discussion. Reports of county presidents.

8:30 P. M.—Reception in honor of past presidents and state officers.

9:00 P. M.—Play presented by members of the Jackson County Auxiliary, "Doctors' Wives and Doctors' Lives."

### NOTES

Mrs. A. W. McAlester, Kansas City, state president of the Woman's Auxiliary to the Missouri State Medical Association, was a guest of Mrs. Roland S. Kieffer, St. Louis, for a few days in March. Several social functions were given in honor of Mrs. McAlester. Mrs. Kieffer entertained several members of the St. Louis chapter of the Auxiliary at a luncheon at the Park Plaza where Mrs. McAlester spoke informally upon the work of the Auxiliary. A bridge luncheon was also given for Mrs. McAlester at the home of Mrs. Kieffer. Mrs. McAlester attended an open-day luncheon of the St. Louis Auxiliary and was guest of honor at a dinner given by the Auxiliary at the St. Louis Medical Society Building.

Mrs. A. B. McGlothlin, St. Joseph, president-elect of the Woman's Auxiliary to the American Medical Association, will be a guest speaker at a luncheon during the annual meeting of the Auxiliary to the Illinois State Medical Association, East St. Louis, May 6.

### JOHNSON COUNTY AUXILIARY

The Woman's Auxiliary to the Johnson County Medical Society is planning a bridge tea to raise funds for paying their pledge to the Scholarship Fund. The Johnson County Auxiliary has given more than the amount of their quota for the last two years.

### JASPER COUNTY AUXILIARY

The Woman's Auxiliary to the Jasper County Medical Society will be hostess to the annual meeting of the Woman's Auxiliary to the Missouri State Medical Association at Joplin, May 12 and 13. Headquarters will be in the Connor Hotel.

All physicians' wives attending the State Medical Meeting, whether Auxiliary members or not, are invited to participate in the entire program that all may get acquainted. This is specially urged because Auxiliary members feel certain that all physicians' wives will want to become members after attending a meeting of the Auxiliary and understanding the help and pleasure that can be obtained from contact with the splendid women from all over the State.

On Monday evening there will be an informal gathering, meeting old friends and making new friends.

Tuesday morning at 9 o'clock there will be an Executive Board meeting. All county presidents are members of the Executive Board and are urged to be present and lend their assistance.

Tuesday at 12:30 is the big Auxiliary luncheon. Dr. Morris Fishbein, Chicago, editor of the *Journal of the American Medical Association*; Dr. W. C. Gayler, St. Louis, president, and Dr. J. Frank Harrison, Mexico, president-elect of the State Medical Association, and other distinguished visitors will be guests. All past presidents of the Auxiliary will be guests of honor. County presidents will give reports of their work at this time. In the evening the Auxiliary is invited to attend the open meeting of the State Medical Association.

On Wednesday at 9 o'clock the general meeting will be held and reports will be given by state officers and new officers will be elected. A luncheon will be served at the Woman's Club at 12:30 at which the new officers will be introduced and plans



for the ensuing year will be discussed. Later in the afternoon there will be a drive with the members of the State Medical Association.

A dinner will be served at the Connor Hotel Wednesday evening at 7 o'clock followed by a non-sensical play, "Doctors' Wives and Doctors' Lives." Music and a Spanish dance will conclude the evening.

The Joplin hostesses have certainly shown that the presence of the Auxiliary is desired and their efforts should be rewarded by the largest and most enthusiastic attendance in the history of the Auxiliary.

### CLAY COUNTY AUXILIARY

The Auxiliary to the Clay County Medical Society met in the Snapp Hotel, Excelsior Springs, February 26, at 6 p. m. for dinner with the Clay County Medical Society.

Following the dinner a short business session was conducted, Mrs. C. H. Suddarth, Excelsior Springs, presiding. Reports of work done by other auxiliaries were read and discussed.

A brief report was given on the memorial, Pershing Hall, for physicians who served and died in the World War.

Items of interest were read from Mrs. W. J. Freeman's letter to auxiliary members which appeared in the *American Medical Association Bulletin* for November, 1930.

Mrs. Harriet Lindsay, Excelsior Springs, superintendent of the Excelsior Springs Sanitarium and Hospital, and Mrs. John D. Brooks, Mrs. Garrett V. Johnson, Mrs. F. Shoemaker, Mrs. O. S. Wilfley, and Mrs. Joseph Dauksys, wives of the members of the medical staff of the United States Veteran's Hospital No. 99, Excelsior Springs, were guests.

It was moved by Mrs. Y. D. Young, Excelsior Springs, seconded and unanimously carried, that Mrs. David S. Long, Harrisonville, be endorsed for state president of the Federation of Women's Clubs.

Mrs. J. J. GAINES, Secretary Pro Tem.

## BOOK REVIEWS

**A TEXTBOOK OF PRACTICAL THERAPEUTICS.** With Especial Reference to the Application of Remedial Measures to Disease and Their Employment Upon a Rational Basis. By Hobart Amory Hare, B.Sc., M.D., LL.D., Professor of Therapeutics, Materia Medica, and Diagnosis in the Jefferson Medical College of Philadelphia, etc. Twenty-first edition, enlarged, thoroughly revised and largely rewritten. Illustrated with 145 engravings and 6 plates. Philadelphia: Lea and Febiger. 1930. Price \$7.50.

A new edition of Hare's "Practical Therapeutics" has become an annual event, showing that the book has lost none of its appeal to practitioners and students of medicine who are not only anxious to diagnose the ailment from which the patient is suffering but wish especially to do something toward its cure.

The author has added much that is new in this edition, such as the use of ventriculin in pernicious anemia, of ammonium chloride and salyrgan as diuretics, of CO<sub>2</sub> as a respiratory stimulant following anesthesia, the deleterious effect of the prolonged use of cinchophen on the liver, etc.

The preface states that "the reader wishes to know

which drug to use, when to use it, how to use it and, equally important, when not to use it." The author has kept these in mind so that the book can be recommended as a practical and safe guide in present-day therapeutics. L. H. H.

**A TEXTBOOK OF LABORATORY DIAGNOSIS.** With Clinical Applications for Practitioners and Students. By Edwin E. Osgood, M.A., M.D., Assistant Professor of Medicine and Biochemistry, Director of Laboratories, University of Oregon, School of Medicine, Portland, Oregon, and Howard D. Haskins, M.D., Professor of Biochemistry, University of Oregon, School of Medicine, Portland, Oregon. With twenty-one figures in the text and six colored plates. Philadelphia: P. Blakiston's Son & Co. Price \$5.00.

Quite a few new books have recently appeared on laboratory diagnosis. This is a help to the laboratory worker for each new book must have some special feature to commend it. By having all the new working books the clinical pathologist can speed up by knowing just what book to choose for the particular thing he wishes to do.

The feature of Osgood's work is a quite remarkable working index. This is a disease index so that given your disease you can find at once all the necessary (a) early, (b) special and (c) late laboratory tests that may be applied to it.

The book is well arranged, concise, well printed and sufficiently illustrated. It well serves its purpose as a good working textbook on clinical pathology. R. L. T.

**A MANUAL OF NORMAL PHYSICAL SIGNS.** By Wyndham B. Blanton, B.A., M.A., M.D., Richmond, Virginia, Assistant Professor in Medicine, Medical College of Virginia. Second edition. St. Louis: The C. V. Mosby Company. 1930. Price \$3.00.

The second edition of this handy manual is well presented and contains a complete skeletal outline for the guidance not only of the student but also the practitioner.

Not the least important of the twenty-one chapters is that devoted to sound, particularly with reference to its application in physical diagnosis. It seems that many physicians, in spite of their knowledge of the physics of sound, have difficulty in interpreting physical findings in accordance with the laws of physics.

The attempt to clarify the confusion with reference to rales is commendable and desirable, but we prefer the simple definition of Bushnell to that given in this text because the former seems the more complete and axiomatic: "Rales are the sounds produced by the passage of air through tubes in the presence of moisture."

We enjoyed the time spent in reading through this interesting textbook and commend it to all who have a real desire to learn the fundamentals of physical examination and its interpretation. S. S.

**A TEXTBOOK OF GYNECOLOGY.** By Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School, etc. With 222 original illustrations, chiefly by Tom Jones. Philadelphia and London: W. B. Saunders Company. 1930. Price \$5.00.

This brief treatise on gynecology has been carefully prepared. Each subject is so condensed that present-day knowledge is readily obtained. I am

impressed with Dr. Curtis' thoroughness in the chapter on infectious processes, especially the discussion on gonorrheal diseases. The reference to protein therapy is valuable and will meet general agreement.

Cellulitis and its relation to puerperal infection with the etiology and treatment is of great importance and is dealt with in a thorough manner. It forms a very important part of the book. The chapter on uterine fibroids, myomata and fibromata is a masterpiece.

Curtis' advice on radium treatment is sound. He emphasizes the point that radium should be reserved chiefly for use on women well over forty years of age and on small tumors. His contraindications include age under forty, tumors of large size, pelvic infections, pediculated fibroids, etc. His technic in dealing with cancer of the uterus is unique. He applies radium needles thrust into the tissues encircling the cervix, a procedure that should give results if radium is of any value in this form of cancer.

The work fills a needed place in the library of the busy practitioner.

T. J. B.

**LEGAL MEDICINE AND TOXICOLOGY.** By Ralph W. Webster, M.D., Ph.D., Clinical Professor of Medicine (Medical Jurisprudence) in Rush Medical College, University of Chicago, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price \$8.50.

While by no means a brief book, since it runs to eight hundred and fifty pages of close print, the present volume aims to cover the ground of the more extensive several, volume tomes on this subject, such as those written by Peterson and Haines, Webster, and Witthaus and Becker.

The first part of the book covers the usual phases of legal medicine, including a discussion of various forms of death as well as the legal rights of physicians, malpractice, abortion, rape, pregnancy, and mental disorders in their medicolegal relations. The greater part of the book, however, is the second part which is devoted to toxicology. Those who are familiar with the previous writings of Webster will know how clear and complete these chapters on poison are.

This book, while necessary to the expert, is a most valuable work for the library of the practitioner. Here he can review the latest word on the poisoning cases and other medicolegal tangles that he not infrequently encounters.

R. L. T.

**THE CHEST IN CHILDREN.** Roentgenologically Considered. Four Hundred and Six Roentgen Ray Studies and Nineteen Clinical Illustrations. Annals of Roentgenology, Volume XII. By E. Gordon Stolloff, M.D., Assistant in Pediatrics (Assistant Radiologist), Mt. Sinai Hospital, etc. Foreword by Bela Schick, M.D., Pediatrician, Mt. Sinai Hospital, New York. New York: Paul B. Hoeber, Inc. 1930. Price \$15.00.

"Roentgenology of the thorax in infancy and childhood is considered in this work from the aspect of a clinician (pediatrician) who is trained in roentgenology as well," says the author of this treatise. The reviewer would add, "and with a thorough appreciation of pathology," for this monographic atlas thoroughly discusses all the chest diseases usually observed in childhood.

Excellent descriptions are given of the mechanism of producing the various shadows in different planes. The clinician should reap considerable bene-

fit from these discussions for the information is most vital to an understanding of the roentgen manifestations of disease processes. Occasionally, the roentgenologist may take exception to certain explanations of the mechanism but it would be purely didactic.

Pathologic proof is constantly invoked to substantiate the diagnoses. This careful correlation of the exact pathology with the roentgen manifestations and clinical findings stamps the book as an authoritative reference work.

The chapter on tuberculosis should be read and reread. It is splendid. The importance of the epituberculous reaction, so well discussed here, is not generally appreciated. Perhaps the statement that tuberculosis is present in 100 per cent of individuals at puberty may arouse criticism in the United States. The author may have been influenced by his experiences on the Continent.

All clinicians interested in the chest diseases of childhood should have this monographic atlas in their reference libraries.

D. S. D.

**POSTMORTEM APPEARANCES.** By Joan M. Ross, M.D., B.S. (Lond.), M.R.C.S., L.R.C.P., Senior Assistant Pathologist to Royal Free Hospital, etc. With preface by E. H. Kettle, M.D., Professor of Pathology and Bacteriology, Welsh National School of Medicine, Cardiff. Second edition. Oxford University Press, American Branch, 35 West 32nd St., New York City. 1928. Price \$2.50.

The author has attempted to prepare a book to serve as a handbook for the general practitioner and those who only occasionally perform autopsies. It offers a brief and concise presentation of the more common pathological processes, the changes being considered only from a gross standpoint.

Valuable notes on methods of performing postmortem examinations and preservation of specimens preface the consideration of postmortem appearances. An appendix gives normal weights and measurements of the various organs of the newborn child and the average adult, with a table showing the dates of ossification of the principal bones.

This volume is valuable to the general practitioner because it affords a very accessible source of information regarding common pathological lesions and important data in toxicological pathology. The author in her commendable effort to make the book brief and concise has perforce failed to emphasize some details which are necessary to completeness from the standpoint of the medical student. This can be remedied in a subsequent edition.

C. G. L.

**WARREN'S HANDBOOK OF ANATOMY.** From Original Dissections by John Warren, M.D., Late Associate Professor of Anatomy, Harvard Medical School; Text by Robert M. Green, M.D., Assistant Professor of Applied Anatomy, Harvard Medical School; Drawings by H. F. Aitken, Instructor of Drawing, Harvard University. Cambridge, Massachusetts: Harvard University Press. 1930. Price \$12.50.

This splendid volume is the result of eight years of strenuous effort by Doctor Warren and presents four hundred anatomical dissections for the purpose of illustrating teachings in anatomical studies. It is an excellent manual, adapted both for dissecting and clinical reference. The drawings are very clear and well marked. It is a valuable addition to the medical and teaching library.

O. J. P.



**TEXTBOOK FOR NURSES.** Anatomy, Physiology, Surgery and Medicine. By E. W. Hey Groves, M.D., B.Sc., M.S., F.R.C.S., and The Late J. M. Fortescue-Brickdale, M.A., M.D. (Oxon.), M.R.C.P. (Lond.) The medical section revised by J. A. Nixon, C.M.G., M.D. (Cantab.), F.R.C.P. (Lond.). Fourth edition. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1930.

This is a surprisingly thorough book and in spite of its immense scope the details are carefully written. It cannot be recommended as a textbook, but as a reference work it should be very valuable to the nurse.  
W. C. G.

**THERAPEUTICS, MATERIA MEDICA AND PHARMACY.** The Special Therapeutics of Diseases and Symptoms, the Physiological and Therapeutical Actions of Drugs, the Modern Materia Medica, Official and Practical Pharmacy, Prescription Writing, and Antidotal and Antagonistic Treatment of Poisoning. By Sam'l O. L. Potter, A.M., M.D., M.R.C.P., Lond. Fifteenth edition. Revised by R. J. E. Scott, M.A., B.C.L., M.D., New York. Philadelphia: P. Blakiston's Son & Co., Inc. Price \$8.50.

In the preface to the 15th edition of this established work Dr. Scott, the reviser, says the book is intended "to serve as a compendium of information regarding both official and nonofficial drugs and preparations." The finished product fulfills the purpose admirably. Though many of the drugs included have no place in modern therapeutics it is important to have a ready reference book where such preparations may be found and described.

There is an occasional omission which might well be included, for instance the ephedrine compounds now so widely used in varied conditions.

The book is of interest for reference, is well indexed, conveniently arranged and includes much interesting information otherwise difficult for the busy practitioner to find.  
A. B. D.

**CONGENITAL CLUB-FOOT (Talipes Equinovarus).** By E. P. Brockman, M.Chir., F.R.C.S., Orthopaedic Surgeon, Westminster Hospital; Assistant Surgeon, the Royal National Orthopaedic Hospital, and Surgeon to St. Vincent's Orthopaedic Hospital. New York: William Wood and Company. 1930. Price \$4.00.

This book of 110 pages was awarded the Robert Jones Gold Medal by the British Orthopedic Association in 1928. The first chapter presents a rather comprehensive tracing of the history of the literature on the treatment of clubfoot from the time of Hippocrates. Brockman recognizes three types of clubfoot and gives an excellent discussion of the normal and pathological anatomy of the foot. He reaches the conclusion that there is a subluxation of the astragalocalcaneo-scapoid joint and shortening of the muscles controlling the socket for the head of the astragalus.

In discussing the etiology of clubfoot he lists four theories, viz., (1) the germ theory, (2) the arrest of development theory, (3) the spasmodic muscular theory, and (4) the mechanical theory, but he accepts none of them as an entirely satisfactory explanation of the cause.

He emphasizes the importance of early treatment, manipulation, and adhesive strapping with felt pressure pads. Plaster of paris casts are discussed as well as several operative procedures.

The book is well illustrated and easily understood. It should be read by every orthopedic surgeon and the obstetrician and general practitioner will profit by a study of this excellent volume.  
C. W. M.

**MODERN SURGERY.** General and Operative. By John Chalmers DaCosta, M.D., LL.D., F.A.C.S., Samuel D. Gross Professor of Surgery, Jefferson Medical College, Philadelphia, etc. Assisted by Benjamin Lipshutz, M.D., F.A.C.S., Surgeon to the Mt. Sinai Hospital, etc. Tenth edition, revised and reset, with 1050 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company. 1931. Price \$10.00.

The importance of DaCosta's Modern Surgery is expressed in its many editions. There is no single-volume textbook printed in English that contains as much information for the general surgeon as does this volume.  
T. G. O.

**TEXTBOOK OF HUMAN EMBRYOLOGY.** By Cleveland Sylvester Simkins, Ph.D., Associate Professor of Anatomy, University of Tennessee Medical School, Memphis, Tennessee. With 263 illustrations, some in colors. Philadelphia: F. A. Davis Company. 1931. Price \$4.50.

This text was especially designed for medical students. It stresses human embryology from the functional as well as the morphological standpoint. It contains summaries of the more recent publications on the physiology of human reproduction, including the female reproductive cycle and physiology of fertilization. The chapters on early development of the human embryo include summaries with illustrations of recent work. The chapters dealing with organology are concise and clear. An extensive bibliography is appended. This book should prove very practicable for medical students.  
E. A.

**ILLUSTRATED PRIMER ON FRACTURES.** Prepared by the Cooperative Committee on Fractures. Under Auspices of Section on Surgery, General and Abdominal and Section on Orthopedic Surgery in Cooperation with Department of Scientific Exhibit of the American Medical Association. Chicago: American Medical Association. Price \$1.00.

As its name implies this is not a complete treatise on fractures. It combines in a few condensed pages the most generally useful methods for emergency handling of various fractures.

The immediate reduction and immobilization of the more common fractures are forcibly stressed. The complete directions for the proper reduction and application of the various types of splints adapted to each fracture are very clear and are accompanied by easily understood diagrams and illustrations.

This book deserves a place in the library of every general practitioner and industrial surgeon. If the directions be closely followed there would be fewer complications or open reductions and fractures would not lie for from a few hours to two or three days "until the swelling goes down." When fractures are properly set just after the injury little swelling usually occurs and much less effort is required to bring the ends into apposition.

The methods recommended represent the combined suggestions of many of the best fracture surgeons in this country. It is a genuine pleasure to recommend this book, especially to the young physician just beginning his practice.  
C. F. S.

# THE JOURNAL

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### A NEW METHOD OF TREATING CAN- CER OF THE CERVIX\*

EUGENE S. AUER, M.D.

ST. LOUIS

I wish to report a method of combined intra-abdominal and intra-vaginal attack upon cancer of the cervix by means of radon and radium, a procedure designed by Dr. George Gellhorn.

To those who may not be familiar with the terminology, I may say that radons are tiny capillaries of gold,  $\frac{1}{8}$  inch in length, filled with the gas given off by radium. The unit of radium in gaseous form, or emanation, is a millicurie (mc.). The actinic energy given off by one mc. corresponds to that given off by one mg. of radium element in 132 hours. However, radium in solid form is indestructible and continues to send out its various rays but radon exhausts itself within a definitely known period. To be precise, radon has given off all its energy within seven days and after that time is inert.

Radons are applied by means of long, slender, hollow individual needles. The seeds are placed in the end of these cannulae and they are expelled by means of obturators. Radon seeds are obtainable in varying strength, the amount employed by us being  $1\frac{1}{2}$  mc. to the seed, which is equivalent to 198 mg. hours radiation. Radium, on the other hand, as is generally known, is a white powder. It is not used in the pure element but in the form of a radium salt, usually radium bromide. The salt is encased in capsules or hollow needles made of steel, brass, silver, gold or platinum.

Radium and radon have been used extensively in the treatment of cancer of the cervix in one of two ways, (1) through the abdomen and (2) through the vagina. By the latter route the applicators containing the radon or radium are placed within the uterine cavity, in the vagina or in the tumor itself. By the former route these agents, mostly in the form of radon, are buried beneath the peritoneum.

\* From the Department of Gynecology, Barnard Free Skin and Cancer Hospital.

### TECHNIC

The technic of this procedure follows: The abdomen is opened by a subumbilical midline incision. After the pelvic cavity has been exposed, the extent of the disease and its extension into the various pelvic structures is ascertained by inspection and palpation. The operator now inserts two fingers of his left hand into the vagina beneath the sterile drapings and with the other hand in the abdomen, he is able to make a thorough examination and detect even the slightest infiltrations and indurations that might have escaped his attention at previous examinations. With the fingers in the vagina as a guide, he now places the various applicators loaded with radon exactly at the points where they are needed; that is to say, around the periphery of the pathologic process and into the enlarged glands, and he can gauge the exact depth at which the radons are to be deposited.

This having been completed, he withdraws from the operation and the abdomen is closed by an assistant. The patient is then placed in the lithotomy position and a capsule of radium is pushed high up into the uterine cavity and radium needles are inserted suitably into the tumor itself. In this manner the uterine cancer is exposed to radiation from all sides, as is shown in roentgenograms taken immediately after the operation (figs. 1, 2 and 3).

The first case (fig. 1) happened to be an exceptionally far-advanced cancer where adherent intestinal loops had to be separated from the underlying structures before access to the pelvic cavity could be accomplished. The slight oozing which followed this separation necessitated abdominal drainage. The rubber dam drain held in place by a safety pin somewhat obscures the picture but, notwithstanding the wide extent to which the radons were inserted from one pelvic rim to the other, the opposing radiation from the capsule in the uterine cavity, and the needles in the cervix can be seen. Figure 2 shows the arrangement of the seeds in the pelvis in a case not so far advanced as



the preceding one. Here we see a more concentrated arrangement of the radons close to the cervix. The capsule containing the radium is seen high up in the uterine cavity and three needles are distributed about the rim of the cervix. Figure 3 demonstrates the arrangement of placing radon in a moderately far-advanced cancer of the cervix. This patient had a subtotal hysterectomy at another hospital eight weeks prior to admission for this treatment. No needles were used in this case as the cancer was intracervical and only the capsule in the cervix was used in company with the intra-abdominal implantation of seeds.

#### DOSAGE

Next in importance to the technic is the dosage. This problem is still in a stage of evolution. Intra-abdominal dosage, which was undoubtedly too small in the beginning, has been cautiously increased from case to case and now amounts to a minimum of twelve seeds of  $1\frac{1}{2}$  mc. each, an equivalent of 2346 mg. hours radiation. Greater quantities are required in the more advanced cases. The amount of radium used by the vaginal route and the time which it is permitted to remain also depend upon the local extent of the disease. Altogether, an average of 4200 to 4500 mg. hours of radiation has been considered a moderate dose for combined attack but with increasing experience a greater initial dose may be found desirable.

#### SUMMARY

In this new method a certain amount of radium in gaseous form is buried within the



Fig. 1. Tumor fills pelvic cavity. A capsule and 3 needles of radium and several seeds of radon are seen.



Fig. 2. Chief involvement surrounding the cervix. Capsule is in uterine cavity, seeds and needles in cervix and parametria.

abdomen and the latter closed. A correspondingly large amount of radium in solid form is inserted by way of the vagina and left in place for a definite number of hours so as to expose the cancer to the amount of radiation previously decided upon. After this length of time the radium is removed.

The entire operation is of brief duration and is well borne by inhalation narcosis. Marked cachexia requires preoperative blood transfusion. In the immediate convalescence "radium sickness" is regularly observed, but as a rule not more frequently than in cases where radium was used by the vaginal route. The "radium sickness" usually disappears within four days and recovery is free from unusual disturbances. The fear that the radons left beneath the peritoneum might produce irritation later on is groundless, for these small seeds have been sterilized by boiling and were inserted under strictly aseptic precautions so they remain in the tissues without causing any disturbance. This is well shown in figure 4, a picture taken eight months after treatment, showing the radons in their original position with no sign of irritation about them.

In the manner described, eleven cases were treated at the Barnard Free Skin and Cancer Hospital by Dr. Gellhorn during the months of June and July, 1930. The experiment was then discontinued for the time being so as to gain an idea as to the efficiency of the method. Since then I have watched several of these patients from time to time and have made final examinations within the past weeks, i. e., from 9 to 10 months after the operation.

These eleven women ranged in age from 26 to 63 years. In six of them, the cancer was far-advanced, in five moderately far-advanced. None of the cases belonged in the category ordinarily designated as operable or borderline. All recovered. In each case there was primary union of the abdominal wall.

Of the eleven women, two are dead. One died of an embolus on arising after twelve days of undisturbed convalescence. The second patient had a far-advanced carcinoma and was cachectic to such an extent that she required a blood transfusion. After an initial improvement exceeding all our expectations the disease made rapid progress and caused death six months after the operation. This was one of our earliest cases and the abdominal dose of radon was undoubtedly too small.

The remaining nine women have shown steady improvement. One has developed a vesicovaginal fistula. She received a second vaginal radium treatment two months after the original combined treatment and the occurrence of the fistula is doubtless due to the second radiation of a tissue already devitalized. All the other patients are subjectively and objectively well at the present time. There is, for instance, a patient of 60 years who had had a subtotal hysterectomy in another hospital eight months previously. She was brought to the Barnard Hospital with a very extensive cancer of the cervical stump. On laparotomy a loop of the small bowel was found firmly adherent to the cervix and invaded by carcinoma. More than six inches of the gut was resected. Fol-



Fig. 4. Radon seeds in place after 8 months.

lowing this, the regular technic as described was carried out. After ten months this patient has gained fifteen pounds and is in the best of health. On examination a few days ago no sign of a recurrence could be found.

We know that it is far too early to speak of any permanent results and we realize that the number of cases is as yet much too small to permit of any definite conclusion. The procedure is being continued on the gynecological service at the Barnard Hospital at the present time. This much is certain: that the new method permits us to make a safe, systematic attack upon the cancer in a manner which has heretofore been altogether impossible. The results accomplished in a brief ten months bear out this statement for these nine women are in a better state of health than are any other nine women treated consecutively with radium alone. The very large amount of material at Barnard Hospital justifies me in making this assertion. Intra-abdominal palpation and visualization of the tumor and its extensions make possible the proper classification of cases that were at first thought operable or borderline in character as is illustrated in one case of supposedly incipient cancer of the cervix. On exposing the pelvis in this case far greater involvement of the parametria than was anticipated was found and an involved gland of large size was discovered at the pelvic wall.

Thus far, the method has been applied only in so-called inoperable cases but we see no reason why it should not be extended to early cases as well.



Fig. 3. Seeds of radon in the parametria and capsule in the cervical canal. (White cross strips are stay sutures in the skin.)



## EMPHYSEMA

### ITS RELATION TO BLOOD PRESSURE AND THE HEART\*

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Recently a great deal of attention has been directed upon the heart in cases of bronchial asthma. Death from this malady is extremely rare and autopsy reports few in number and in many of these reports the heart was not definitely mentioned.

There has been much said and written upon the disturbances in the heart associated with bronchial asthma with little or no agreement as to the pathological findings. Alexander, Lutén and Kountz<sup>1</sup> in reporting fifty cases say that any consideration of the effect of long standing bronchial asthma upon the heart becomes essentially a study of the heart in emphysema, for this complication is an organic defect and is almost an inevitable complication of such asthma. This emphysema, however, according to the present conception, is a mechanical result of repeated asthmatic attacks and thus differs in its immediate etiology from that seen in other conditions. Walker<sup>2</sup> says: "Although the elasticity of the lung in an asthmatic after a time becomes impaired and thus makes the prognosis more unfavorable, integrity of the myocardium is rarely weakened." Miller<sup>3</sup> writes: "As a result of repeated heart strain associated with the attack and the cardiac changes attending on chronic emphysema, evidence of cardiac decompensation is apt to appear early. Dyspnea on moderate exertion is common in the asthmatic when free of asthma. The appearance later in life of cardiac decompensation should serve as a warning that bronchial asthma is to be taken seriously and every effort made to prevent a recurrence of attacks." Cooke<sup>4</sup> agrees, I believe, with the generally accepted idea that the chief lesion in the heart is dilatation of the right ventricle and later hypertrophy as a result of emphysema of any considerable degree.

Huber and Koessler<sup>5, 19</sup> have reviewed the literature up to 1922. They reported the fifteen cases found, and in addition six cases of their own. F. M. Rackemann<sup>6</sup> in 1926 reported a case with autopsy findings, and two years later Kountz and Alexander<sup>7</sup> reported three cases. In the majority of instances, the report chiefly concerned the

pathological findings in the lungs while the heart if referred to at all was merely mentioned. Consequently conclusions have been drawn without the desired detail.

There are in all twenty-five available autopsy reports on patients who had clinical bronchial asthma. The reported cause of death varied in practically all cases. There are only ten cases which can be attributed to bronchial asthma. Six cases died of conditions similar to heart failure, three of pneumonia and one each of anaphylactic shock, pulmonary tuberculosis, suicide, hemorrhage, septicemia and tumor. Of this number, ten were women, fourteen men, one a child. The average age at the time of death was 36.8 years in the women and 50.5 years in the men; the average duration of the symptoms was 11.5 years.

There were five cases in which the heart was found to be normal or smaller than normal in size. One showed increased fat and three increased fibrous tissue throughout the heart muscle. The right ventricle was hypertrophied and dilated in thirteen, which could however be explained on grounds other than asthma. The left ventricle was found dilated in four cases and hypertrophied in six, the greatest thickness being two cm. It was found to be normal in six cases and not mentioned in ten. Of the twenty-five cases, ten can be eliminated from consideration for various reasons, such as no cardiac report, complicating heart lesions, questionable diagnosis. This leaves only fifteen cases to be considered and they can be placed in three groups.

Group 1 includes the cases in which there was some condition other than asthma that would account for the lesions found in the heart, and cases in which the data were insufficient. In group 2 may be placed the cases which showed the heart to be affected by bronchial asthma. In group 3 are the cases in which the asthma had no effect upon the heart.

Eight cases can be placed in group 1, two in group 2 and five in group 3. Of the two placed in the second group, one was reported by A. G. Ellis.<sup>8</sup> The patient was a man 27 years of age who entered the hospital in a severe attack and died the following day. Rackemann lists this case as uncomplicated bronchial asthma. Previous to his entering the hospital the patient had tachycardia but no lesion could be found in the heart and his physician decided that the asthma was in no way related to the heart. There were no clinical signs, such as edema

\* Read before the Caldwell County Medical Society, Brainerd, October 30, 1930.

and congestion, to suggest myocardial insufficiency.

At autopsy the heart was found to be of good color, the left ventricle hypertrophied, measuring 1.5 cm. in thickness, and the right ventricle dilated and flabby.

The other patient in group 2 reported by Rackemann,<sup>6</sup> was a woman aged 39, who had had hay-fever every fall since she was 14 years of age. At 27 her hay-fever left her and asthma began. She was found to be sensitive to many common substances. The autopsy report showed normal valves and a dilated right ventricle.

From the general tone of both these autopsy reports it can be readily seen that it is a questionable procedure to place these cases in the second group. Alexander, Luten and Kountz,<sup>1</sup> in summarizing their report and study of fifty cases, point out their impression that the heart remains peculiarly free from demonstrable pathology, which is certainly in keeping with the low mortality rate in bronchial asthma.

"Emphysema is a condition in which the alveoli of the lungs are dilated and their walls atrophied," says Barr.<sup>9</sup> There are three types found, namely, the atrophic, the senile and the hypertrophic. Of these the latter type is found to be the inevitable complication of long standing bronchial asthma.<sup>10</sup> In the fifty cases reported by Alexander, Luten and Kountz<sup>1</sup> emphysema was found in all cases and in only one did the vital capacity even approach normal.

Beginning in 1773 with the well known experiment of Stephen Hales many successive observations have been made upon the periodic variations of the blood pressure relative to inspiration and expiration. There seems however to be no uniformity of opinion upon the subject. It is probable that both the variations in the cardiac cycle coupled with the mechanical influence of the cycles of respiration explain the variations in pressure. In 1922 Trotter, Edson and Gesell<sup>11</sup> demonstrated a fall in pressure on inspiration and a rise on expiration, using the Erlanger sphygmomanometer. These findings have been supported by Erlanger and Festerling,<sup>12</sup> Wiggers,<sup>13</sup> and Snyder.<sup>14</sup> In a large series of healthy individuals they also found that rhythmic variations in the heart played not the great part that was heretofore noted in the hearts of animals, hence they concluded that the arterial pressure is largely influenced by the mechanical action of inspiration and expiration. If the experiment of Valsalva is performed in

which the pressure is measured after the subject has taken a preliminary deep inspiration followed by a prolonged and forced expiration, it is noted that the blood pressure will at first rise and then fall. This experiment has been modified to a certain extent by Alexander, Luten and Kountz<sup>1</sup> who took normal subjects and measured the transverse orthoscopic shadow of the heart and immediately afterward had them strain after a deep inspiration against a closed glottis. They found that the heart shadow became diminished. Likewise Götzl and Kienböck<sup>15</sup> took patients afflicted with bronchial asthma and measured the heart shadow between attacks and immediately afterward while straining against a closed glottis. A similar reaction was noted.

It seems that in any condition where there is difficulty in the expiration of air there is an increased intrathoracic pressure. Wiggers<sup>16</sup> has repeated this experiment, using the radial pulse tracing as an index to the blood pressure. He was able to show that the base line at first rises and later falls and that the waves become markedly hyperdicrotic. Lewis<sup>17</sup> has shown that the preliminary rise is due to an actual increase in arterial pressure and not as was formerly thought to a venous engorgement beneath the instrument. The fall in pressure associated with the hyperdicrotic waves is explained as being due to a decreased venous return to the heart and consequently a diminished minute output.

I have found the sphygmograph rather deceptive in that a slight movement on the subject's part or the merest change in adjustment of the instrument causes a deflection in the base line. I have obtained these results by means of the Erlanger sphygmomanometer using a normal individual whose systolic pressure was found to be 119 mm. Hg. Upon a forced expiration against a closed glottis the pressure fell to 110 mm. Hg. Upon repeating the true experiment of Valsalva with the Erlanger sphygmomanometer the systolic pressure dropped to 105 mm. Hg. A very logical explanation of this phenomenon would include "the effect of negative pressure upon the extrapulmonic vessels." The initial rise in pressure seems to be due to a forcing of blood into the general circulation at the onset of the theoretical obstruction. The subsequent fall can be explained as being due to the resistance offered the blood at the point of entrance into the thorax. There is an increased resistance offered the blood and



consequently less blood enters the right heart and a fall in blood pressure is noted. Alexander, Luten and Kountz<sup>1</sup> were aware of this fact for in summarizing their article they say, "It is suggested that the increased intrathoracic pressure which occurs during an asthmatic paroxysm may impede the venous blood and that the work of the heart thereby actually may become diminished."

In contradistinction to this, Cooke<sup>4</sup> finds between attacks of asthma that both systolic and diastolic blood pressures are frequently low and during a paroxysm the systolic is elevated. He cites an instance in which the systolic pressure between attacks was 95 mm. Hg. and during an attack was elevated to 160 mm. Hg. This however has not been my experience. J. W., who is a good example and who is typical of many individuals studied and tested, was seen and observed when he was having a mild asthmatic attack. While the attack was at its height, sphygmographs were taken twice, in each instance just preceding rather severe paroxysms. The systolic pressure was recorded as 105 and 106 mm. Hg., respectively. A few hours later, while the patient was entirely comfortable and at rest, another sphygmograph was made and the systolic blood pressure was found to have risen to 118 mm. Hg. The electrocardiogram on this patient was essentially normal.

That a consistent low systolic blood pressure is invariably noted in emphysematous subjects is well illustrated by A. E., a patient, aged 48, who is extremely emphysematous and who has been suffering with dyspnea on exertion and with smothering attacks for several years. The venous pressure was found to be 105 mm. of water. A sphygmograph was made while the patient was entirely at ease with a radial pulse of 70 per minute. The systolic pressure was 110 mm. Hg. After a rather grueling amount of work his pulse mounted to 78 per minute and the systolic pressure fell 2 mm. Hg. The electrocardiogram was essentially normal.

The case of J. B., aged 55, who has been a sufferer from asthma for 14 years and also has an extreme amount of emphysema, is particularly interesting. The venous pressure was 95 mm. of water. The electrocardiogram showed right and left ventricular extrasystoles and evidence of myocarditis. (Figs. 1, 2, 3.) The sphygmograph also showed numerous extrasystoles and considerable alternation in the strength of

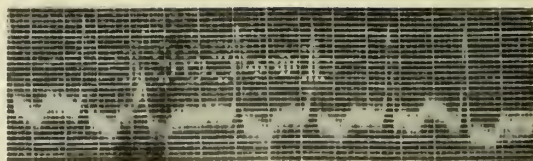


Fig. 1

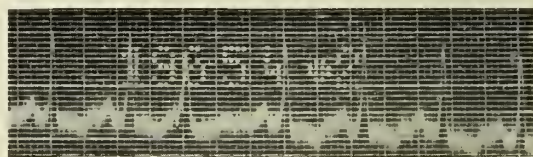


Fig. 2

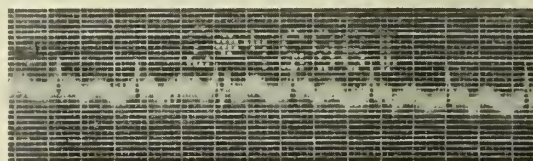


Fig. 3

propulsion. The systolic pressure while entirely at rest with a radial pulse of 129 per minute was 138 mm. Hg. After a rather considerable amount of work the patient was extremely dyspneic and uncomfortable. The radial pulse was 140 per minute and the heart had responded with a greatly increased number of extra beats and an elevation in the systolic pressure of only 9 mm. Hg.

The case of J. B. can quite readily be contrasted to that of F. E., aged 24, who is not asthmatic but has a mild degree of hypertension, perhaps, whose sphygmograph shows a systolic pressure of 128 mm. Hg. while at rest with a radial pulse of 86 per minute. (Figs. 4 and 5.) After exercise the pulse was elevated to 136 per minute and the systolic pressure mounted to 150 mm. Hg. It would seem probable that the emphysematous condition of J. B. was perhaps imparting a certain amount of protection to the already damaged myocardium.

#### COMMENT

1. Emphysema is a constant accompaniment of any long standing bronchial asthma.

2. In emphysema the interpleural pressure is increased. This causes a decrease in the amount of blood entering the right heart, hence a lowered arterial blood pressure.

3. It is therefore suggested that emphysema, especially in the less extreme state, even in cardiac disease, acts as a protec-

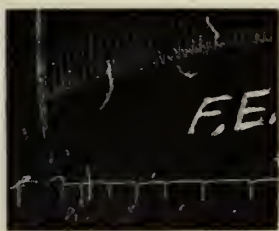


Fig. 4

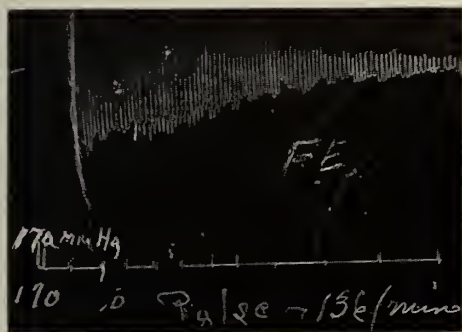


Fig. 5

tive mechanism perhaps to the already damaged myocardium.

Bohner Building.

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## MASSIVE ATELECTASIS OF THE LUNG\*

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The initial interest I took in this subject was occasioned chiefly by fear. My earlier nose

\* Read before the Jackson County Medical Society, January 27, 1931.

and throat surgery was done with the apprehension that at most any time I should be confronted with a lung abscess. It has been demonstrated many times following nose and throat operations under either general or local anesthesia that blood may be found in the trachea or even in the bronchi due to gravity or aspiration. Why, then, could not some infectious material from the nose or throat, lodging in a smaller bronchus, easily result in a lung abscess? In my opinion, the reasons why we do not have more pulmonary complications in otolaryngology are: (1) the anesthesia if general is usually of short duration and not very deep; (2) the patients are free to move about following the operation; (3) the cough reflex, which Chevalier Jackson calls the watch dog of the lungs, is rarely abolished through pain, position or narcosis.

The recent impetus that Jackson and Lee have given to the study of postoperative pulmonary complications will doubtless bear remarkable results. Following an appendiceal abscess they found that a massive pulmonary atelectasis had developed. After a bronchoscopy a plug of mucus was removed and the atelectasis cleared up rapidly. For some years, Chevalier Jackson has taught and described the atelectasis of the lung which results from the impaction of a foreign body in a bronchus. That portion of a lung distal to the foreign body is deprived of its incoming air and the blood absorbs the residual air while the walls of the alveoli collapse. That observation was nothing particularly new, for Mendelsohn in 1841 and Lichtheim in 1878 described practically the same condition, only of course without the bronchoscopic aspect. Lichtheim introduced a laminaria tent into a bronchus and found it was followed by an atelectatic condition of the lung distal to the plug.

Notwithstanding these early observations, when William Pasteur, an Englishman, in 1908 described his findings in eight autopsies following death due to diphtheria, in which he found the condition that he called massive collapse of the lung, his explanation was that the lung collapse was due to a diphtheritic paralysis of the muscles of respiration, especially the diaphragm.

Following Pasteur, massive atelectasis has been described many times with various etiological factors ascribed to it. Analysis of the apparently diverse conditions found in massive atelectasis shows two factors to be constantly present, (1) obstruction in the bronchial tree and (2) some interference with the respiratory movements. Coryllos states practically the



same idea when he says that "the determining factor in the production of this condition is the more or less temporary plugging of a bronchus by mucus which is followed by the absorption of the alveolar air and with atelectasis of the corresponding lung. The obstruction of a lung depends not only upon the consistency and viscosity of the bronchial exudate. It depends as well upon the expelling force of the lung which maintains unimpaired its means of defense, namely, coughing, respiratory movements and activity of its ciliated epithelium. The cilia probably help break up the column of mucus and cough expels this mucus from the bronchus. On the contrary, very thin mucus may be able to obstruct a bronchus when the lungs are at a disadvantage, as they often are after operation, because of suppression of the cough reflex by narcotics, pain, posture, splinting of the thorax, paralysis of the respiratory muscles or because of general weakness in wasting illnesses."

Postoperative pulmonary complications are probably more frequent than we suppose. Small patches of evanescent atelectasis giving few if any symptoms may be found postoperatively if searched for. As to the localization, in ninety cases, the right lower lobe was affected in 53 per cent, the left lower in 25 per cent and various combinations made up the remaining 22 per cent.

The following incidence was found in 134 cases compiled from the literature:

Following appendectomy .....	42 cases
Herniotomy .....	36 cases
Gastric or duodenal procedures.....	6 cases
Pelvic operations .....	17 cases
Thyroid operations .....	5 cases
Various other operative procedures each .....	1 and 2 cases

The symptoms of massive atelectasis are not pathognomonic. Usually they present within 24 hours following operation, such as pain in the chest or a feeling of uneasiness, cough, usually little expectoration, dyspnea and cyanosis. The temperature may be 100 or slightly above, although fever is not a marked symptom. The physical signs are more definite and conclusive, namely, unilateral dullness and displacement of the heart to the affected side. The roentgen ray readily shows the opaque lung, high diaphragm and displaced mediastinal contents. The initial absence of breath sounds followed by their augmentation to a tubular character suggests that at first the bronchi are closed. When the bronchi open the breath sounds naturally sound tubular owing to their conduction through atelectatic lung substance

while later, as the alveoli become aerated, the vesicular type is heard, with rales.

The condition may be confused with lobar pneumonia or confluent bronchopneumonia, but the displacement of the heart to the affected side and roentgen ray evidence of the mediastinal displacement will materially help in the differential diagnosis. Also, the massive degree of involvement in atelectasis, with the absence of the toxicity one would expect in pneumonia, is of importance.

Occasionally, an early pneumonia in children will be very confusing. As a matter of fact, Cöryllos in an exhaustive article published in May, 1930, gives some very good reasons why he thinks that in the near future we will consider lobar pneumonia to be an infectious, generally pneumococcic, lobar atelectasis of the lung. Fluid in the pleural cavity will, of course, give dullness on percussion but, whereas in massive atelectasis the chest wall is retracted and the interspaces more pronounced, in acute pleural effusions the chest wall, if anything, is fuller than the normal side and the cardiac displacement is not to the affected side as it is in atelectasis.

In pulmonary embolism there is generally a sharp pain, rise of temperature, blood-streaked sputum and, most important, a loud, crunching friction rub at the base. Furthermore, pulmonary embolism occurs later in the postoperative course than does atelectasis. In spontaneous pneumothorax the tubercular background and roentgen ray findings will, as a rule, differentiate the conditions.

The treatment of massive atelectasis is primarily prophylactic. Granting that the two factors necessary for bronchial obstruction are, first, more or less viscid bronchial secretion and, second, the inability of the lungs to expel it, preoperative attention to the mouth and teeth, to upper respiratory infections and sinusitis, and to a careful chest examination, is clearly indicated. As added measures, the operative trauma should be minimized, especially in the right upper quadrant, the patient after operation should avoid protracted postures and the cough reflex should be safeguarded.

The use of 5 per cent carbon dioxide with oxygen following anesthesia as advocated and elaborated by Henderson is to my mind a most important procedure, both as a prophylactic measure and in the treatment of massive atelectasis when it has developed postoperatively. Carbon dioxide increases the rate and depth of respiration and produces violent movements in the tracheobronchial tree and altera-

tions in the shape of the lumen of its branches, thereby tending to free adherent mucus. Carbon dioxide also decreases the coagulation time of the blood. Working with Dr. Ralph Waters I found that in 200 cases of general tonsillectomies the coagulation time in children was decreased 25 per cent, the effect lasting up to an hour.

It is well known that the vital capacity of the lungs is reduced postoperatively. Head found that the greatest changes were produced in abdominal operations and the reduction was proportionate to the extent of the procedure and the proximity of the operative field to the diaphragm. Carbon dioxide will overcome this reduction in the vital capacity and will redistend and aerate the partially atelectatic areas. In conjunction with the administration of 5 per cent carbon dioxide in oxygen, Sante's method of rolling the patient back and forth on the unaffected side is of value. The procedure is simple, available to all and carries no risk to the patient. I believe the explanation to be the fact that when the patient is rolled on the unaffected side, back and forth, the mediastinum is pushed to its proper position and loosens the bronchial plug, which can then be coughed out. If the patient does not improve following these relatively simple procedures and the obstructing plug cannot be removed by coughing, bronchoscopy should be employed. While the procedure is not one to be welcomed, either by the patient or surgeon, nevertheless the shock need not be feared and the benefits are almost certain.

In conclusion, may I not emphasize that there is a group of postoperative complications, formerly commonly diagnosed as postoperative pneumonia, which in reality is of a quite different pathogenesis and usually requires a different type of treatment; that the prime factor in its production is bronchial obstruction and that the use of carbon dioxide with oxygen is a marked advance both in the prophylactic and active treatment of the condition known as massive pulmonary atelectasis.

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## SPONTANEOUS PNEUMOTHORAX

IN AN APPARENTLY HEALTHY WOMAN FOLLOWING ORDINARY MOVEMENT\*

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AND

F. J. HELLRUNG, M.D.

ST. LOUIS

Because of the scantness of the presumed pathology, and the disproportion between the simple cause and its violent effect, the following case is presented. The number of reported instances of pneumothorax occurring in seemingly normal people is not large. In 1902 Fusesell and Riesman collected fifty-six cases, while Friesdorf up to September, 1927, was able to find but one hundred and seventy-seven in the literature.

#### REPORT OF CASE

L. L., white girl, aged 19, married. Family history negative. Personal history negative except that in May, 1930, she experienced pain in the lower part of the left side of the chest lasting for several days though not accompanied by fever or incapacity for housework. A small pleural rub was heard at the time. This pain in a mild form recurred on several occasions.

*Present Illness.*—On October 10, 1930, while reaching overhead for a kitchen utensil, she was suddenly seized with a sharp pain in the left infraclavicular region. The pain radiated down the left arm and was especially severe on inspiration. It was excruciating at first so that she could not move but soon lessened to a considerable degree. Three hours later, in hurrying to catch a street car, the pain again became so severe as to necessitate her return to home and rest in bed. There was now experienced the first real difficulty in breathing. During the following three days the pain materially decreased, although some was still felt on the fourth day. For the first three nights it was impossible for her to lie on the right side; other than this there was no dyspnea. Fever, cough, hemoptysis and cyanosis were never present.

When she first appeared for treatment nine hours after the onset the pain did not seem to distress the patient nor was dyspnea noticeable even after climbing a flight of stairs. Examination of the chest showed diminished expansion, hyperresonance and absence of breath sounds over the left side. A coin sound was obtainable but no metallic tinkle or succussion splash was heard. Breath sounds on the right side were exaggerated and the heart dullness was approximately in the middle of the chest. Roentgenologic examination was not obtainable until twenty-four hours after the accident. The plate showed the left lung collapsed to about one third its original size, a small amount of fluid in the most dependable portion of the pneumothorax cavity and the heart moderately dislocated to the right. The diaphragmatic excursion was very narrow on the

\* Read before the St. Louis Medical Society, December 16, 1930.



involved side and more than ordinarily wide on the opposite side. On the fourth day, breath sounds were heard over the left chest but were noticeably feeble. The heart was now one half inch to the right of its customary position. Eleven days after the accident the breath sounds over the left side were of normal intensity except in the upper third where they were still feeble. The heart had returned to its normal location.

On November 21 there was no disproportion in the breath sounds of the two sides. A roentgenogram taken on November 24 showed no air or fluid present in the pleural cavity, both lungs normal in appearance and the heart in normal position. Fluoroscopic examination showed good illumination of both lungs and a free excursion of the entire diaphragm was seen. The young woman was going about her household duties without symptoms of any kind.

#### CONCLUSION

An adhesion or an emphysematous bleb, resulting from the previous pleurisy, was torn by the movement of the arm or in running for the street car thus leaving an open line between the bronchial system and the pleural cavity.

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### RUSSELL EXTENSION IN FRACTURE OF THE FEMUR\*

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With the present wave of enthusiasm for skeletal traction in fractures of the long bones, augmented by the recent addition of Böhler's procedures, it seems like a reversion to antiquity to bring a skin traction idea to the attention of the profession. But I am so convinced of the sanity and simplicity of this extension and have seen such remarkable results in the few cases observed that I feel impelled to make a preliminary report.

My attention was first drawn to the method by Dr. J. R. Kuhn, of Joplin, then an intern in the Kansas City General Hospital, who requested permission to apply it in a case of fracture of the shaft of the femur. The system is named for its originator and is at present widely used in the Jefferson Medical College Hospital and the Pennsylvania Hospital in Philadelphia where the author studied a number of cases on the services of Dr. John Gibbon and Dr. W. Estell Lee in October, 1930. Lee has used it in over 100 cases with an average shortening of but one fourth inch.

The apparatus is applicable to fractures from the region of the trochanters down to the condyles. It may be used in the farmhouse or the hospital with about equal ease. It per-

mits of elevation of the head and thorax, use of bedpan and bed-table, and requires a minimum of nursing care and medical supervision. Once the plan of placing the pulleys is fixed in the mind and the location of the fracture is known, any one who knows how to apply a Buck's extension will have no difficulty in using the Russell extension. Hodgen's and the Thomas splints are complicated by comparison and are apt to be improperly suspended even in the hands of experienced surgeons.

At no time is the knee fixed in an immobile position. It may be and should be moved by the attending surgeon or resident once a day to avoid capsular thickening. The flexion of the thigh overcomes the psoas pull on the upper fragment, the tensor fascia femoris acts as a splint, when taut, and prevents external bowing. The hamstrings are counterbalanced by the gastrocnemius so that there is no widening of the knee joint. The compounding of traction in the line of fracture reduces the fracture and abduction or adduction of the limb on the foot pulleys controls the alignment.

Figure 1 represents diagrammatically the plan of applying Russell extension for fractures of the thigh. An ordinary bath towel, or in children and patients with sensitive skin, outing flannel, is slipped beneath the knee, pinned over a foot ruler or knotted, and this in turn attached securely to traction cord. On the overhead frame a pulley is suspended (as shown at 1) and through it the cord is run.

The foot and leg are slipped into a stout stocking, or adhesive is applied to the skin of the leg and lower thigh as for ordinary Buck's

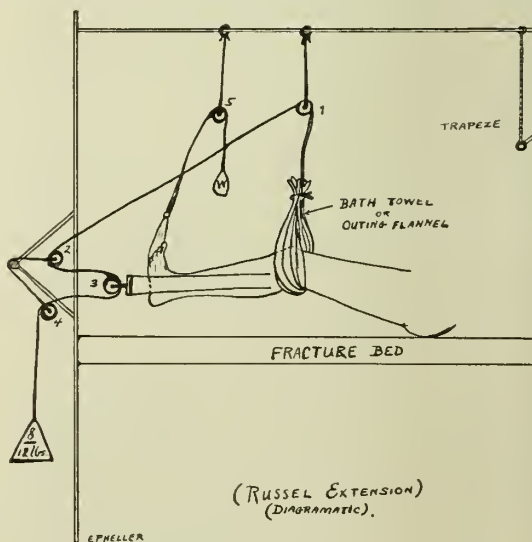


Fig. 1. Diagrammatic representation of the principle of Russell extension for fracture of the femur. Foot of bed may be raised or not. If not raised a padded box should be placed at the foot of the sound leg so patient can push himself up in the bed.

\* From the Fracture Service of the Kansas City General Hospital.

extension. If a sock is applied first, the adhesive gets its purchase in the lower thigh and leg above the sock and is extended beyond the foot to a wooden block as in Buck's extension. To maintain dorsal flexion of the foot a cord is knotted through the toe of the sock and passed through a second pulley suspended above the middle third of the tibia. After the rest of the extension is completed, a three or four pound weight is suspended from the other end of this cord. (Fig. 1.)

If the bed is equipped with an outrigger transverse rod at its foot, as shown in figure 1, all that is now necessary is to tie a pulley at each end of a 12 to 18 inch piece of cord, hang it over the rod and tie a pulley to the block at the patient's foot. The long rope which has its proximal end tied securely to the towel is now threaded over the pulley marked 2, then over number 3 and finally over number 4.

If the fracture is recent, eight pounds weight will usually suffice to get adequate extension. If more than a day old, 10 or 12 pounds may be required. More weight should not be used; in fact is not needed after overriding is corrected. A serious skin slough resulted from a rough towel and too much weight in a debilitated old



Fig. 3. (a) Fracture as first seen Oct. 28, 1930. Almost complete avulsion of lesser trochanter and oblique fracture in upper third of shaft.

man. Because of the compounding of the pull by the use of the four pulleys, it may readily be seen that 8 pounds is in reality very close to 20 pounds. In the case in which the popliteal skin was irritated, the femoral overriding was converted into a full inch breach between the bone ends at the end of 24 hours.

Figure 2 shows a Russell extension as applied to a patient with partial ankylosis of the knee and a fracture of the middle third of the femur. It was necessary to raise the leg to compensate for the failure of flexion of the knee. The author had a bed-clamp bent in such a way that it could be raised or lowered to accommodate the height of the pulleys to the elevation of the leg and still swing the weight out free of the foot of the bed. This clamp may be moved from side to side of the foot of the bed, if necessary, and is nearly as effective as an outrigger rod, as shown in figure 1, although obviously not so simple.

The patient with this type of dressing has practically no discomfort, can sit up, has no constricting cast of pelvis, can readily raise himself on bedpan and off by the use of an ordinary trapeze. Raising the foot of the bed makes it simpler for the patient to remain up and on the back rest. There is otherwise in the ordinary case no need to raise the foot of the bed. A padded soap box at the foot of the bed enables the patient to push himself up with the good leg if he slips down.

Figure 3 shows a type of fracture of the up-



Fig. 2. Patient with partial ankylosis of right knee up in Russell extension. Note pulleys at foot of bed (2, 3 and 4 in fig. 1) are elevated to compensate for failure of knee to flex. Perfect alignment has been secured; patient sits up at will. Blocks under foot of bed make box for left foot unnecessary.





Fig. 3. (b) Same fracture on Oct. 29, 1930, after 12 hours in Russell extension.

per end of the femur peculiarly adapted to this form of traction. It will be noted that the lesser trochanter remains attached by a very flimsy piece of the cortex, and undue manipulation or abduction might readily cause the psoas pull to detach it. The patient was 63 years of age, rather stout, just the age and build never intended for plaster. The Russell



Fig. 3. (c) Result on Dec. 15, 1930. Patient left hospital on crutches Jan. 5, 1931. Bore full weight on leg and walked a month later.

extension was applied without anesthetic. She had no pain then or at any other time. The before and after pictures speak for themselves. She sat up in bed or was helped onto the bedpan without trouble from the outset. She was injured on October 28, was put in traction on the 28th, was removed from traction on December 15 and was up on crutches within two weeks. She left the hospital January 5, 1931, and has been bearing full weight without pain in hip or thigh since the first week in February. There is no shortening and the fracture line in the last roentgenogram is not discernible.

#### SUMMARY

A simple, double plane method of extension in fractures of the femur has been described. It is known as Russell extension, having been named after its originator, Dr. Russell, of New Zealand. The author has seen it applied in the wards of two large hospitals in Philadelphia and has applied it himself in the Kansas City General Hospital. He has not seen it applied nor heard of its application elsewhere. He believes the method deserves the confidence placed in it by Drs. Gibbon and Lee, of Philadelphia, and should be widely used where technical knowledge of skeletal traction, Böhler apparatus, Hawley tables and other paraphernalia are lacking.

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### RECTAL ADMINISTRATION OF LIVER EXTRACT\*

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Little mention has been made in the literature of the administration of liver extract by rectum. Reznikoff<sup>1</sup> has reported giving it to three patients by the rectal route with good results. Others may have had a similar experience but I have found no reference to it in the literature available to me. Recently we had one patient who was unable to take liver extract by mouth because of nausea and vomiting. Her condition was critical so it was decided to administer the extract by rectum. The results were excellent and are described in the following report:

#### REPORT OF CASE

Mrs. H. L. K., white, aged 33, admitted to the hospital October 10, 1930, complaining of weakness, nervousness, coughing and vomiting. Family history negative in relation to present illness. Had diphtheria, tonsillitis, rheumatism and pneu-

\* From the medical service of the Grim-Smith Hospital and Clinic.

1. Reznikoff, Paul: Rectal Administration of Liver Extract (Cod) J. A. M. A. 93:367 (Aug. 3) 1929.

monia during childhood. Had two severe attacks of influenza. Mother of three children, living and well. About five years ago was delivered of a dead fetus near full term, followed by hemorrhage, phlebitis in both legs and severe anemia. In May, 1930, was very ill with measles. Since about August 10, 1930, had enteritis with diarrhea every few days.

On admission to the hospital the skin was yellowish, smooth and very pale. She was nervous, weak and short of breath. Frequent spells of coughing without expectoration annoyed her greatly. Heart and lungs normal. All teeth absent; tonsils appeared normal; mucous membranes extremely pale; trace of albumin in urine. Red blood cells 890,000, hemoglobin 30 per cent, white blood cells 4,000. Temperature 101.4, pulse 116, respiration 24. A blood smear showed marked irregularity in the size and shape of the cells and granular degeneration. Several nucleated erythrocytes were present. Analysis of gastric contents revealed the absence of free hydrochloric acid. Reflexes normal. Roentgenograms of chest and kidneys negative. Tentative diagnosis, pernicious anemia.

difficulty in distinguishing between a severe secondary anemia and pernicious anemia and will follow the progress of the patient with interest.

While this patient was given one small blood transfusion and one intramuscular injection of blood we believe the benefit from these was slight. No apparent benefit was noted for three days following the blood transfusion but the improvement following closely on giving the liver extract and continuing for several days thereafter was very striking. It is also of interest to note that after the liver extract was decreased and given by mouth instead of by rectum there was no gain in the red blood cell count for a period of three days. We do not know yet what results will follow the oral administration of liver extract to this patient. Our only purpose in reporting the case is to call attention to the apparently striking results obtained by the rectal administration of liver

Table 1. *Progress of Case*

Date	Hemoglobin Per Cent	Erythrocytes	Comment
1930			
Oct. 10	30	890,000	Admitted to hospital.
Oct. 13			Blood transfusion. Unable to take liver extract on account of vomiting.
Oct. 14	20	530,000	No better. Rectal administration of glucose begun.
Oct. 17			No better. 30 c.c. whole blood intramuscularly. Rectal administration liver extract started.
Oct. 18	40	1,110,000	Feeling much better.
Oct. 21	45	1,700,000	Feeling fine. Good appetite.
Oct. 22	50	1,960,000	Sitting up in bed.
Oct. 25	65	2,070,000	Sitting up in chair.
Oct. 27	75	2,650,000	Walking about room. Liver extract decreased to three tubules daily. Rectal administration discontinued.
Oct. 30	75	2,490,000	Dismissed from hospital feeling well.

The patient continued to grow worse. Red blood cells decreased to 530,000, hemoglobin to 20 per cent, as nearly as we could determine with Tallqvist scale. Dyspnea increased; unable to retain anything in stomach. Temperature rose as high as 104, pulse 140, respiration 40. Glucose per rectum, four ounces of 5 per cent solution every four hours, was begun. She also received at this time (Oct. 13) a blood transfusion, 220 c.c. citrated blood, from her twelve-year-old son. Supportive treatment in the form of strychnine and digitalin was given and, on account of the extreme restlessness, several small doses of morphine. She did not improve and on October 17 she was given 30 c.c. whole blood intramuscularly, her father being the donor. At the same time we began administering liver extract suspended in the 5 per cent glucose solution rectally every four hours. Within twenty-four hours there was a very decided improvement and subjective symptoms were all relieved. Patient was hungry and ate heartily, feeding herself. From this time she continued to improve. Table 1 shows the progress made from time of admission to the hospital until she returned home three weeks later.

We believe the results obtained by the treatment described and the future events in this case will verify our diagnosis of pernicious anemia. We recognize, however, the great dif-

extract when the patient was unable to take it by mouth on account of nausea and vomiting.

[The following additional data has been secured since the above was written: During the six weeks since the patient left the hospital she has felt well and is doing a considerable amount of housework. She has taken liver extract by mouth three times daily. December 6 the red blood cell count was 5,250,000, hemoglobin 80 per cent.]

## CLINICAL OBSERVATIONS ON THE INJECTION OF VARICOSE VEINS\*

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The following data, case reports, etc., are taken from a series of two hundred fifty cases treated during the last year and a half at St. Mary's Dispensary, outpatient department of St. Mary's Infirmary, teaching hospital of St. Louis University. In the two hundred fifty cases a total of six hundred seventy-five injections were made. In no case was treatment

\* From the Department of Surgery, St. Louis University School of Medicine.



instituted until a complete history was obtained and physical examination made, including blood pressure, urinalysis and Wassermann tests. Thirty per cent of the patients were males. A record of their occupations adds little to our information since most of the females are housewives and a large majority of the males unemployed. The youngest patient treated was twenty-four years old and the oldest eighty-five. Sixteen per cent were in the second decade of life, 23 per cent in the third decade, 27 per cent in the fourth, 23 per cent in the fifth, and the remaining 11 per cent over sixty years of age. Ten per cent of the females had had one child, 80 per cent were multiparous, the average number of children being five. The Wassermann reaction was negative in all our cases and there was no history or clinical sign of syphilis in any case. The urine in all cases treated was normal. In 40 per cent of the cases treated both legs were affected. From a study of the history of these patients no evidence can be obtained which satisfactorily explains the cause of varicose veins; however, it is interesting to note what a large percentage of the cases were multiparous women. Twenty-three per cent of this series had ulcers in addition to varicose veins, some of them recent and some of long standing. Five per cent were complicated by dermatitis. Our contraindications to the injection treatment were (1) history of a phlebitis or periphlebitis, (2) advanced cardiovascular disease, (3) advanced nephritis, (4) marked debility. We did not feel justified in injecting veins for strictly cosmetic reasons. Several girls were refused treatment for small blue veins which were visible but were causing no symptoms. We do not consider pregnancy a contraindication to the injection treatment. We did not inject the veins in cases of first pregnancy since a large proportion of these varicosities disappear spontaneously following the gestation. However, if a woman had had more than one child and the varicosities had persisted or caused symptoms after delivery we felt she was entitled to relief during pregnancy. We have had no unpleasant reaction in any of the pregnant women so treated.

The following sclerosing solutions were tried to determine what solution was most effective: 50 per cent glucose; 20 per cent sodium chloride; a combination of 50 per cent glucose and 30 per cent sodium chloride; a combination of 13.3 per cent quinine hydrochloride and 6.6 per cent urethane; and finally a solution of sodium salicylate varying from 20 to 40 per cent. After an unbiased trial we have now limited our treatment to 40 per cent sodium salicylate.

An objection to the use of quinine and urethane is that only a small quantity can be used at a time due to the constitutional reaction of quinine, thus requiring many repeated injections. The dangerous reaction in those who bear an idiosyncrasy to that drug is another disadvantage. The use of 50 per cent glucose was discontinued since it was not nearly such an effective sclerosing agent as sodium salicylate. The advantages claimed for glucose combined with sodium chloride are that this solution causes less pain and will not produce a slough following accidental extravasation. It is true that pure glucose solution is less painful than sodium salicylate and bears the advantage that it can be used in large quantities at one treatment. However, several cases have been reported in which deep sloughing ulcers have occurred following the leakage of glucose solution. In our experience there were no sloughs following the use of glucose.

Contrary to the claim that 50 per cent glucose combined with 30 per cent sodium chloride will not produce sloughs, we had two cases with rather large sloughs following the use of this solution and we noted very little difference in the degree of pain produced by the solution compared with 40 per cent sodium salicylate. We found 50 per cent glucose combined with 30 per cent sodium chloride a very effective sclerosing agent in about 80 per cent of the cases in which it was used, but it was due to the fact that it failed to give results in about 20 per cent that we discontinued its use. In one patient it failed utterly to thrombose a small group of varicose veins after three injections of 10 c.c. each were used. This same group of veins probably would have been thoroughly thrombosed by one injection of sodium salicylate.

Forty per cent sodium salicylate is preferable to any of the other solutions for the following reasons: (1) sloughs may and do occur with any of the other solutions; (2) none of the other solutions are painless excepting glucose, which is far less efficient than sodium salicylate; (3) sodium salicylate has been absolutely successful in any case of varicose veins in which we have used it; (4) it has not caused a serious constitutional reaction in a single case following its use; (5) the only disadvantages in the use of 40 per cent sodium salicylate are, first, the severe cramping pain that follows immediately after the injection is completed and lasts for an average of two minutes then suddenly disappears; second, the slough that invariably occurs if any of the solution is deposited outside the vein. This slough can be avoided only by care in the technic. In all our

injections we had a total of seven sloughs and these occurred during the first fifty injections.

The pain following the injection is a variable factor. A few patients complained of no pain on one injection yet complained bitterly at some subsequent injection although we used the same solution and technic. A few made a demonstration of excruciating pain by groaning and crying but this never lasted more than two or three minutes. The majority of the injections were followed by rather severe cramping that extended from the toes through the entire leg and sometimes to the hip. In a few cases there was nausea and vomiting. In an attempt to obviate the pain we have recently experimented by adding novocaine to the 40 per cent solution of salicylate. One minim of 10 per cent solution of novocaine is used per c.c. of the sodium salicylate. This solution has apparently eliminated the pain in a large proportion of the cases and modified the degree of pain in a certain per cent of the others. In a few cases the addition of novocaine had no significant effect upon the amount of pain, as was proved by making an injection on the same person at different times, first with novocaine in the solution and later without it. In one case treated with the novocaine there was a moderately severe constitutional reaction which has caused us to be a little afraid of increasing the amount used. At the present time we are not sure whether the solution of novocaine and sodium salicylate should be used. We shall experiment further and will also try injecting novocaine into the vein several minutes previous to the salicylate injection to allow time for the maximum anesthetic effect. We expect to report more fully upon the use of a local anesthetic combined with sclerosing solutions at a later date.

Occasionally, about twelve hours after the injection of either 40 per cent sodium salicylate or 50 per cent glucose combined with 30 per cent sodium chloride, there was a widespread area of redness of the skin, sometimes extending over the entire leg, together with local heat and tenderness. In every case this reaction or inflammation subsided within twenty-four to forty-eight hours after rest in bed, elevation of the affected part and an ice bag locally.

The following simple tests are employed to determine the functional capacity of the deep vein. According to the Trendelenberg test a tourniquet is placed snugly above the knee and the patient instructed to walk about the room. If the deep veins are patent, blood will be milked into them by the muscular activity through the communicating veins, the superficial vessels becoming less distended. However, if the deep veins are occluded the varicosities will become more distended and the

patient will complain of discomfort. The Pirth test consists of applying an elastic bandage from the toes to the middle of the thigh after having emptied the superficial veins by elevating the leg. If the deep vein is patent the patient will be more comfortable on exercise with the bandage than without it; if the vein is occluded the patient will complain of sharp, cramping pains in the bandaged leg upon walking. The history of the onset and development is probably as important as any test. The following report illustrates this point:

Mr. X, aged 35, single, clerk, applied at the clinic for treatment of distended veins of the right leg. He stated that overnight the leg became greatly swollen with the visible veins greatly distended. This onset occurred about one week prior to his visit to the clinic. Examination showed the right leg moderately swollen from the ankle to the knee and the superficial veins much distended. Diagnosis: thrombosis of the deep vein. Injection not indicated since the enlargement of the superficial veins was a compensatory reaction.

#### TECHNIC

The following technic is employed with the patient in the recumbent posture whenever possible.

The ideal condition is for the vein to be almost completely collapsed and yet to contain enough blood so that it may be entered with a needle and blood aspirated into the syringe. A collapsed vein is easily transfixated and great care should be taken to avoid this accident since we know that the solution may leak through a very small needle puncture of the vein wall. It is not necessary to use a tourniquet unless its use aids in making the vein visible, since the blood in varicose veins is either motionless or its flow is in the reverse direction. The sclerosing solution does not enter the general circulation but slowly diffuses in both directions from the point of entrance into the vein. At regular intervals during the injection blood should be aspirated into the syringe to reassure the operator that the needle is still within the lumen. The solution should be injected very slowly and with a minimum of pressure because the fluid under pressure may rupture a thin-walled vein. In patients with large cavernous veins filled with blood the leg is slowly elevated after the needle is placed in the vein in order to empty the vein before starting the injection, since the blood dilutes the sclerosing fluid thus reducing its efficacy. For all injections we use a 10 c.c. glass Luer syringe and a rustless steel needle five eighths inch in length, gauge number twenty-three. At the completion of the injection the needle is left in place for a moment and immediately upon withdrawal a cotton ball is held firmly over the puncture opening. Steady pressure is maintained upon the cotton ball for at



least two minutes; then it is strapped firmly in place with narrow criss-cross strips of adhesive. A small pressure pad of gauze is placed over the cotton ball; this is bandaged snugly. After lying down ten minutes the patient is permitted to get up and go about his business. He is seen the next day when the pressure pad and cotton ball are removed and the leg is bandaged from the toes to above the knee with an elastic bandage. This bandage is worn for several weeks following completion of this treatment.

Two hundred of the cases treated have been interviewed to determine the degree of success of the treatment. In all cases the treatment was successful in obliterating the varicose veins. There have been no recurrences although some cases were treated a year and a half ago. With the exception of five cases, all the patients have emphatically stated that they have been relieved of their symptoms, including those patients who complained of great pain prior to treatment. In the five cases not improved by treatment a closer study has revealed a secondary cause of the symptoms. Two of these cases have hypertrophic arthritis of the knee joint; in one the symptoms were due to a peripheral neuritis, in another a vasomotor disturbance of the lower extremities was the cause of the symptoms, while the remaining case was due to an eczema of long standing apparently not related to the diseased veins. There has also been a striking improvement in the varicose ulcers following treatment. Several ulcers of long standing which had consistently failed to improve with the usual form of treatment, some having been subjected to practically every recognized type of treatment, have been entirely and permanently closed. In every case of varicose ulcer the best results were obtained when the superficial veins in the vicinity were obliterated.

The author wishes to cite one case in which a vein overlying the external malleolus was injected. In his text on varicose veins McPheeters warns the operator to avoid injecting the veins overlying the malleoli. This case, selected to test the value of the warning, confirms the observation of McPheeters.

#### REPORT OF CASE

Mrs. X, aged 35, married, mother of two children, applied for treatment of varicose veins. Examination revealed numerous large, tortuous varicosities of the large and small saphenous veins of the right leg, with a large distended loop lying directly over the external malleolus. With three injections, using 40 per cent sodium salicylate, the veins of the leg and thigh were well obliterated. There was no unusual amount of pain immediately following any of the injections nor any unpleasant after-effect, such as local inflammation, swelling, or sloughing. The patient said the pain had entirely disappeared and she was elated over the result. I

then decided to inject the vein overlying the malleolus and 5 c.c. of 40 per cent solution sodium salicylate were injected. This was immediately followed by an unusual reaction of excruciating pain extending from the toes to the hip. The following day the ankle and leg were greatly swollen and the patient complained of constant pain in the calf. She was put to bed, the leg and foot elevated, an ice bag applied. There was no improvement for about ten days when the pain in the calf disappeared. About a week later, after she was up and about, she was suddenly seized with a severe cramping pain in the bottom of the foot. The pain was paroxysmal but the attacks were so frequent that she was completely disabled for about two more weeks and was kept awake several nights in spite of the use of analgesics and sedatives. This injection was made three months ago and she still complains of some pain in the foot.

#### CONCLUSIONS

1. The injection method of treating varicose veins is efficacious.
2. Of all solutions tried (glucose, sodium chloride, quinine and urethane, sodium salicylate) 40 per cent sodium salicylate gave the best results.
3. Sloughing is caused by all solutions if any escapes into the tissues.
4. The treatment is practically painless unless the injection is made into the veins over the malleoli.
5. The procedure is comparatively safe, two hundred and fifty patients having been treated without accident.

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## THE VITAMINS AND METALLIC SALTS, AND PLANT, ANIMAL, AND HUMAN NUTRITION

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The slow though never-ceasing progress of knowledge in the field of plant, animal and human nutrition, is being accelerated by conditions faced by dense populations struggling to maintain themselves on the available land.

The theory of Malthus was based on the productiveness of land and the nutritional value of the foods grown thereon as measured in his day. Following the discoveries of Liebig in the years centering about 1840, both plant and human foods came to be measured on a different scale and some of the former ratios were disturbed.

The greatest advance, however, has been made since the studies of nutritional deficiencies and the tissue disorders arising from them brought to light the story of the vitamins, to which is slowly being added the story of the metallic salts.

A certain amount of empirical knowledge came with the recognition of means to prevent

and to cure scurvy. Then came the knowledge of the relation of certain foods to rickets. But it was when the etiology of beriberi was determined and Eijkmann used the term vitamin—whether or not the first to do so does not matter—that a fairly clear insight began to be had into the importance of what are still called in some writings “accessory food factors.”

Very patient and laborious work over many years has resulted in learning that plants have their vitamins, which are indispensable, as well as man and animals have, and that if deprived of them they suffer with nutritional deficiency and die.

One of the most striking illustrations of a deficiency disorder in plants has been shown by Dr. W. E. Brenchley, of Rothamsted, England, in the case of broad beans and other legumes. When boron is rigidly excluded by spectroscopic analysis, it does not matter what other nutritional elements may be present, the plant makes only a feeble growth and presently dies. The addition of an almost incredibly small amount of boron to the same nutrient solution in which the plant has been unable to grow results in full growth with normal flowering and fruiting.

An equally striking illustration showing the pronounced tissue changes from iron deficiency in young pigs has been shown by Dr. J. P. McGowan, at Rowett Institute in Aberdeen. The tissue changes—a wet pericardium, a swollen liver, fluid in the abdomen—remind one strongly of the tissue changes found in the wet and rapidly fatal form of beriberi. The pigs die when about three weeks old while those supplied with iron develop and grow normally.

Iodine deficiency reaching a certain degree results in hyperplasia of the thyroid and defective development in humans and in some animals. The absence of fresh vegetables and fruits in human diet begets scurvy. Rickets is an illustration of a food deficiency which can also be alleviated by certain chemical changes brought about by sunlight or by other forms of light. The absence of either calcium or phosphorus from the diet results in rickets. Marked nutritional deficiency has been seen in cattle on the western plains due to phosphate deficiency; a phosphate “hunger” occurs which causes the cattle to chew bones found lying on the pastures.

The story of manganese deficiency in garden vegetables, especially tomatoes, on the calcareous soils of southern Florida has been told by the chemists of the United States Department of Agriculture. Formerly it was only possible to obtain growth on these soils by the use of imported manure. Now, the gardener instead of hauling great loads of manure hauls a few sacks of sulphate of manganese and ap-

plies it at the rate of about fifty pounds to the acre, and vigorous vines and large yields follow.

Recently Dr. Oswald Schreiner, of the Bureau of Chemistry of Plants and Soils, told of a disorder occurring in tobacco plants in Sumatra. He suspected it to be a deficiency disease and some experimenting proved that it was due to the lack of boron.

Doctor Brenchley has shown that there is only a narrow margin between the stimulant and the toxic effects of boron on plant life, so we may not apply it indiscriminately. The almost accidental inclusion of borax in fertilizers during the war had disastrous results. The growers sued the fertilizer manufacturers and recovered damages.

This same narrow margin has been found to exist in the case of copper and arsenic and it will probably be found true of all the metallic salts. Just as in the use of medicines in human beings, a small dose may benefit and a large dose poison.

The scientific accuracy of the influence of plant stimulants and poisons has been largely attained by the use of “water cultures.” By reason of the varied composition of soils, field experiments cannot be said to rest on the secure scientific foundation that “water cultures” do. But, from a practical standpoint, much has been done to make soils productive which were formerly sterile.

It is now fairly clearly recognized that beside the vitamins, which may not be isolated chemically, there are certain mineral salts that are essential to the growth, development and welfare of human beings and animals. It appears obvious that if these elements are not present in the soil they will not be present in the plants grown thereon. If not present in the soils and plants they will not be present in the flesh and organs of animals consuming the plants. And man, consuming plants and animals and their products, will find lacking elements necessary to him.

We may say now that calcium, phosphorus, iron, iodine, manganese, copper and zinc are apparently as indispensable to human and animal welfare as any of the so-called vitamins. They act like vitamins in plant, animal and human life.

Is it not then important that we know that our garden and field soils shall contain not only nitrates, phosphates, potash and lime for the more abundant growth of plant life, but that they shall also certainly contain the elements which make plants of real value to the consumer?

It is not an expensive enterprise to supply the necessary elements when we have proved the soils to be lacking in them. As in the case



of iodine in the prevention of goiter, almost incredibly small amounts are effective. Iron, in the form of oxide, or rust, may be cheaply applied. Manganese at fifty pounds to the acre at ten cents a pound, borax at the rate of eight pounds to the acre, copper at the rate of five pounds to the acre, are illustrations.

Physicians have been accustomed to recommend the use of certain vegetables, such as spinach, for iron content. But the newer knowledge of the chemistry of plants would lead us to inquire first as to the iron content of the soil on which a plant is grown. Should iron be indispensable to the growth of the plant it still might not be present in such quantity as to furnish the amount needed.

The reports of Remington as to the iodine content of vegetables grown in South Carolina, contrasted with the reports of McClendon as to the iodine content of vegetables grown in California, furnish a very convincing argument in favor of supplying the soil with such amounts of the elements necessary to human and animal nutrition as will be converted by the plant without retarding its growth.

The conversion processes carried out by plants can rarely if at all be imitated by chemists in the laboratory. And thus far no record has been made of a plant taking up an abnormal and toxic amount of any mineral salt without itself succumbing. This so far as we know is also true of animals.

When we can be assured by physiological chemists that a metallic salt is necessary to the human organism is it not well to have the conversion processes carried out in plants and perhaps again in animals?

If we use certain vegetables for their iron let us know that iron is in the soil. If for their iodine, or copper, or manganese, or zinc and even for calcium and phosphorus, let us be sure that the plant is supplied through the soil with such amounts of these elements as will not be toxic to the plant.

We will then have in mind quality and not, as heretofore, quantity.

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## TREATMENT OF ANTERIOR POLIOMYELITIS WITH ANTISTREPTOCOCCIC POLIOMYELITIS SERUM

REPORT OF SEVEN CASES

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In the summer and early fall of 1930 an epidemic of acute anterior poliomyelitis spread over the whole country. The disease was so

sporadic in its appearance that it was unusual for the rural physician to see more than a very limited number of cases. Since various authorities hold this disease responsible for about 80 per cent of our crippled children and since the writer's experience with antistreptococcic serum in the treatment of the disease has been so striking even though in a very limited number of cases, the publication of the results of this treatment has seemed desirable.

The purpose of this paper is merely to present the results of the administration of antistreptococcic serum in poliomyelitis and to suggest routine spinal puncture in suspected cases and routine early administration of the serum.

In this epidemic the most common symptoms and those which should excite suspicion on the part of the attending physician, are as follows:

### Subjective symptoms:

Fever.  
Headache.  
Nervousness or irritability.  
Pain in back of neck or in back.  
Pain in extremities.

### Objective symptoms:

Fever. Vomiting.  
Stiffness of neck.  
Positive Brudzinski.  
Positive Kernig.  
Muscle weakness.  
Paralysis.

The presence of some or all of these symptoms in a child during an epidemic should provoke a provisional diagnosis of infantile paralysis until some other diagnosis can be proved. In the presence of an epidemic and in the absence of any or all of the above symptoms, when one encounters in a child a fever unaccompanied by explanatory physical findings such as sore throat, pyuria, or otitis media, one should be very reluctant to forsake a provisional diagnosis of anterior poliomyelitis.

Early diagnosis is possible only by resorting to early spinal puncture in all suspected cases. An increased cell count and a positive globulin reaction may be considered as diagnostic of the disease in the presence of an epidemic. The fluid is generally clear and comes through the needle sometimes at a normal and sometimes at an increased pressure. The opalescent or turbid appearance of the fluid of meningitis is absent and the pressure has been less than that usually found in meningitis.

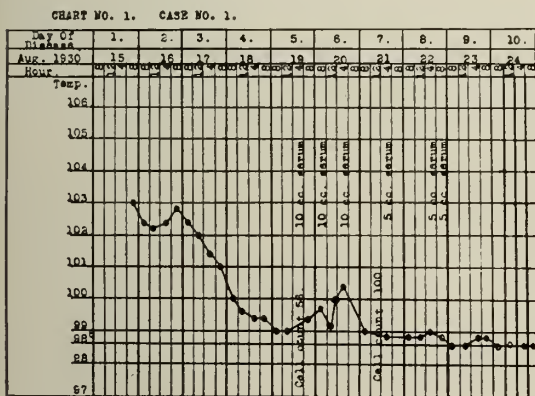
The cure or prevention of anterior poliomyelitis and its subsequent crippling has always been and may still be unattainable, but the use of antistreptococcic serum is apparently attended by much better results than were formerly obtained in the average case without its use.

In order to present the results of serum

treatment short histories of seven cases are presented, and their temperature curves recorded.

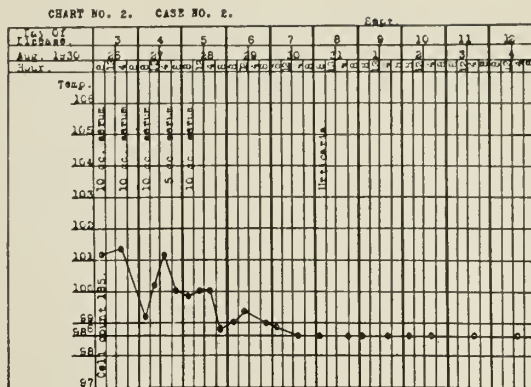
### REPORT OF CASES

Case 1. A girl, aged 4, was in excellent health until the night of August 15, 1930, when she awakened at 11 o'clock crying and complaining of headache and pain in the left leg. She vomited immediately. From that time until morning she slept fitfully except when she awakened three times to vomit. On the morning of August 14 she had no complaint but a temperature of 102.4. She was quite content to stay in bed and three days later the temperature began its downward course. Not being able to find any other cause for the fever I attributed it to a small amount of pus found in the urine. She improved steadily and felt so well that she was allowed to be dressed and put on the floor, whereupon it was discovered that she staggered, limped and favored the left leg. No other signs of nerve involvement. I had examined the reflexes and tested the muscles for weakness three times daily since the beginning of her illness with negative results until at noon, August 19, the fourth day of her illness when she showed definite weakness of the left peroneal muscles, left gluteus maximus and left quadriceps femoris.



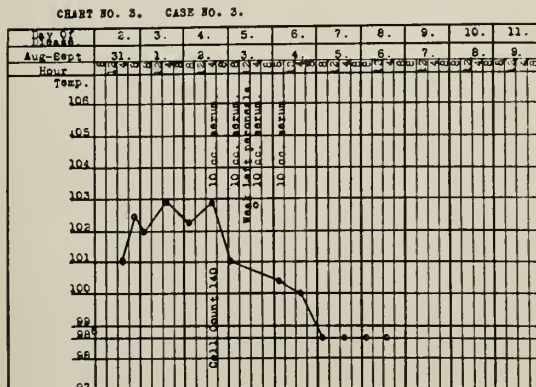
Immediate spinal puncture was done by a consultant. The fluid showed 56 cells per cmm. and a positive globulin reaction. She was given 10 c.c. of serum immediately and 10 c.c. at 12 hour intervals for two succeeding doses (chart 1). It will be seen by the chart that after the third dose of 10 c.c. of serum the upward course of the temperature curve stopped and it began to come down. She was given three more doses of 5 c.c. each and the temperature remained at or a little above normal. It will be noted that the first two doses of serum produced a febrile reaction and that the cell count had increased to 100 per cmm. after the temperature had reached a nearly normal level. It will also be noted that the administration of serum apparently cut short the secondary rise of fever characteristic of the disease. For three days all movements of all extremities were exceedingly painful. I am not prepared to say whether this pain was due to a polyneuritis or to reaction to the serum. At present, September 17, she has regained the use of all of the paralyzed muscles. She has not yet been allowed to bear weight on her legs.

Case 2 (chart 2). Billie T., aged 9, played all



day August 24 and was in his usual good health. About 6 p. m. he complained of headache and lay down. He went to bed with a headache and at midnight awakened with a high fever and headache. These symptoms continued unabated until noon the next day at which time the temperature was 101.4. Physical examination failed to reveal anything abnormal or the cause of his fever. On the morning of the 26th spinal puncture was done and was followed by relief from headache within five minutes. Cell count 185. He was given serum in 10 c.c. doses at 12 hour intervals for three doses. The temperature curve started downward and a fourth dose of 5 c.c. was given. Twenty-four hours later, the curve still not showing a tendency to return to normal, he was given a final dose of 10 c.c. following which his temperature reached normal in three days. This boy, on Tuesday, August 19, the third day of his disease, had noticeable weakness of the left peroneal group. This weakness increased for a time but at present (September 16) he has good use of the foot and it is safe to say will make a complete recovery.

Case 3 (chart 3). Verda R., girl, aged 6. On Sunday afternoon, August 31, began to complain of headache and abdominal pain and tenderness. Did not vomit. The fever was slight. All that night was restless, had a high fever, complained of pain in and tenderness of the neck, abdominal pain and tenderness but did not vomit. I saw her at 2 p. m. the following day and found her with a temperature of 102.8, very nervous, apprehensive in appearance and some tremor of arms and hands. A provisional diagnosis of anterior poliomyelitis was made. She was given hexamine and salicylic acid and sent home. Twenty-

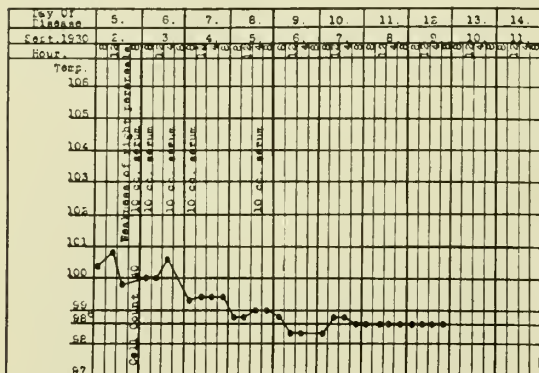




four hours later she had the same group of symptoms, but in addition had positive Kernig and Brudzinski signs. Spinal fluid cell count 140. She was given 10 c.c. of serum at once. By the next morning her temperature was down to 101. She then showed some weakness of the left peroneal group. Serum treatment was continued in doses of 10 c.c. at 12 hour intervals until she had received 40 c.c. at which time her temperature was normal. On September 15 had no paralysis and the left peroneal group had markedly strengthened although still weak. She is being kept in bed. Her complete recovery is hoped for and expected.

Case 4 (chart 4). Lorraine T., aged 11, a sister of Case 2. On August 29 first complained of pain in the small of the back and in the eyes. This lasted three days and during this interval her temperature ranged between 99 and 101 and on the fourth and fifth days reached 102. I could find no cause for the fever except pus in her urine. Careful examination every morning and evening during the first three days of her illness revealed no signs of poliomyelitis. Kernig's and Brudzinski's signs were absent all the time. At 6 p. m. on September 2, the fourth day of the disease, there was not only weakness but

CHART NO. 4. CASE NO. 4.

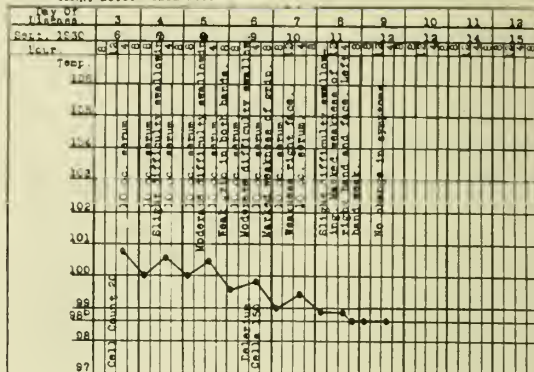


total paralysis of the right peroneal group. There had been no weakness or paralysis that morning. This case well illustrates the rapidity of onset of the paralysis. The spinal fluid cell count was 40 per cmm. She was given 40 c.c. of serum in doses of 10 c.c. at 12 hour intervals, after which her temperature was almost normal. Thirty-six hours later she was given an additional 10 c.c. Ten days after the last administration of serum there was power of contraction of the peroneals and the foot could be brought to a right angle with the leg. The prognosis in this case must be somewhat guarded but I believe she will make an almost complete recovery.

Case 5 (chart 5). Buford T., aged 18, went to bed feeling well on Wednesday night, September 3. Thursday morning he awakened with a violent headache and soon complained of pain in the back of the neck and vomited. These symptoms were accompanied by moderate fever and the vomiting occurred several times daily until I first saw him at 3 p. m. on September 6, the third day of his illness.

Kernig's and Brudzinski's signs were positive. The headache and pain in the neck were quite severe, the temperature 100.8. The spinal fluid cell count was only 20 per cmm. The fluid was under considerable pressure and puncture gave

CHART NO. 5. CASE NO. 5.



almost immediate relief from the headache. He was given 10 c.c. of serum immediately. The next morning his temperature was 100 but added to the picture was a slight weakness of the right peroneals and a difficulty in swallowing of such a degree that he could take only one swallow of water at a time and that very slowly. Serum was given at 12 hour intervals. The next day, the third day of treatment, he showed increasing weakness of the right peroneals, increased difficulty in swallowing, and in addition a marked weakness of the grip in both hands but more marked on the right. The fourth day of treatment, or sixth day of disease, all these symptoms were exacerbated and the fever was showing a downward course. At 3 p. m. of this day the patient was delirious and trying to get out of bed. A spinal puncture quickly relieved the delirium. The spinal fluid cell count was 150. The next day, the fifth day of treatment, there was weakness of the facial muscles on the right side, including all muscles usually involved in a supranuclear lesion of the seventh nerve. The sixth day of treatment, the eighth day of the disease, all symptoms were more marked than ever. The right hand could be flexed but was almost powerless. From this time on there were no changes in symptoms for three days but the fever disappeared. Now, on the fifteenth day of the disease, he has some power in the grip of the right hand, the left hand is about half normal, the right peroneals are about one-third the strength of the left, and the right side of the face is beginning to show noticeable improvement. Swallowing has been accomplished without difficulty for the past five days.

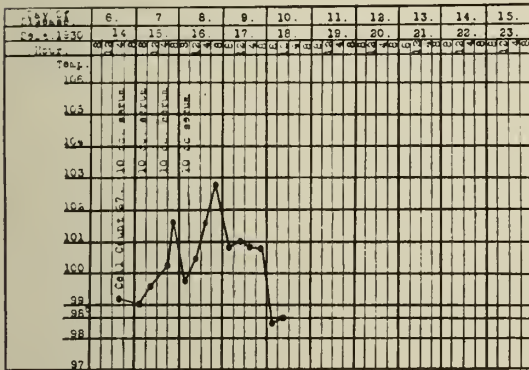
This case is unusual in that it is of the progressive ascending type. The improvement shown so far is little short of marvelous.

Case 6 (no chart). Teddy G., aged 13, walked a mile in going downtown after noon on Saturday, September 13, 1930. He came home shortly afterward complaining of headache but of no other symptoms. Complete physical examination at this time revealed nothing abnormal. His temperature was 100.8. The next morning temperature was 100.2 and physical examination showed only weakness of the right peroneal muscles. No neck pain. Brudzinski's sign not clearly positive. Spinal puncture showed only 22 cells per cmm. He was given 10 c.c. of serum. That afternoon his mother took him to Kansas City where he was seen by two physicians who, although they did not do a spinal puncture, made a diagnosis of influenza. Their opinion to the

contrary, I still feel that this boy had a mild case of anterior poliomyelitis. The boy is home now, has a normal temperature, has only a very slight weakness of the right peroneals, and is apparently in good health. In this connection it must be remembered that, to quote George Draper, "The circumstance that 70 or 80 per cent or possibly a higher count during epidemics, present merely the aspect of an acute, generalized infection, without sign of central nervous system injury, not only renders the diagnosis of individual cases difficult, but also complicates the correct elucidation of epidemiological phenomena."

Case 7 (chart 6). Emily B., aged 5, was well until 7 p. m., September 8, when she complained of pain in the head and back of the neck. She then had little if any fever, according to her

Chart No. 6. Case No. 7.



mother who stated that at 10 p. m. when she herself retired she found the child "burning up" with fever. The child was restless all night and for the next three days lay in bed, cross, peevish, and complaining of pain in her head and neck. On the third day her parents consulted a physician who found nothing wrong. On the fifth day the child was up and about the house, was cross, peevish, and at frequent intervals would climb upon the bed and lie down for a while. Her gait was normal so far as her parents observed. Sunday, September 14, the seventh day of her disease, her mother states that the child could not sit down in a chair unassisted because of pain on flexion of the hip and knee joints. I first saw the child on the afternoon of the seventh day, at which time she had a definite limp in the left leg. Spinal puncture revealed a fluid under a considerable though unmeasured pressure. The cell count was 27 per cmm. She was given four doses of 10 c.c. of serum at 12 hour intervals. The rise in temperature noticed on the temperature chart may be due either to reaction from the serum, or to the secondary rise which is normal in certain cases. The child felt much better on the third day of treatment, at which time there was definite weakness of the left peroneals. On the fifth day of the disease the temperature was normal. Left peroneals weak but not paralyzed.

#### SUMMARY

This report includes the treatment of seven cases of anterior poliomyelitis. The average age was 8.25 years; there were three males and four females; the peroneal muscles were

involved in each case, three times on the right side and four times on the left side; in three cases additional muscles were affected; the average of all spinal fluid cell counts was 82; at present it seems that five cases will make complete recovery and two an almost complete recovery. The final results will not be known for some time, but will be reported in a later communication. (By January, 1931, all these cases except Case 5 had made complete clinical recovery. Case 5 still shows some weakness of the peroneal group.)

#### CONCLUSION

It is conceivable that the results in these cases might have been just as good had antistreptococcal serum not been used, but the rapidity with which these cases improved and the uniformly good results which are apparent even at this early date, tempt one to ascribe the results, partially at least, to the use of the serum. Certainly we should view the treatment of anterior poliomyelitis with antistreptococcal serum with an open mind until reports on a large number of cases either confirm or condemn its use. Convalescent serum is admittedly superior to antistreptococcal serum, but it must be remembered that convalescent serum is seldom if ever available to the average rural physician.

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## THE PROSTATE AS A FOCUS OF INFECTION\*

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ST. JOSEPH, MO.

Focal infection, now more or less commonplace, is usually thought of as an infection in a locality that is somewhat concealed. It is usually hemmed in and found most often in dark or imperfectly lighted cavities where extension is difficult. Focal infection has a bad effect on surrounding tissues but the most demoralizing influence is exerted away from home and frequently at points far distant from its site. The poisonous influence takes the form of toxins which are conveyed by blood and lymph.

The effect of these toxins may be seen as arteriosclerosis, also sensitization, the latter often causing bizarre and extraordinary complaints which seem at first to have no definite disease basis.

A train of symptoms is produced by focal infection that may be divided into two groups, (1) acute focal infections, (2) chronic focal infections.

The infected prostate gland produces a train

\* Read before the Buchanan County Medical Society, February 4, 1931.



of symptoms of both acute and chronic types, but it is the chronic type that concerns us here.

Most of the attention that has been shown the prostate has been from the standpoint of a focal infection, both acute and chronic. We are now aware that it is more than merely a local thing.

C. H. Neilson in 1924 said: "In my office practice a study of the prostate has been carried on and the results are startling." It has always been the custom of internists to palpate the prostate but it is not the general custom to massage and to study the prostatic secretion.

Neilson studied over 200 men who came to him for diagnosis and examination. They did not come for a diagnosis of their prostatic troubles but for conditions which naturally fall to all internists. Many of the men had been repeatedly examined but the prostate never touched. Many had been through the hands of great diagnostic teams yet this examination had been neglected.

In the study of these prostates as a point of focal infection there were no acute cases and none with *Neisseria* infection under two years preceding the examination. He did not select the cases but tabulated the results of the examinations as they were made.

All precautions were taken to avoid introducing infectious material from the urethra or from outside infection. The prostatic fluid was studied in two ways, (1) a drop was placed on a slide and covered. A study of the leukocyte count was made, and also it was noted whether any bacteria could be found. (2) A smear was also made stained with methylene blue, and the number of leukocytes and bacteria noted. In many cases great numbers of leukocytes were found with no bacteria, in other cases fewer leukocytes and many bacteria.

Of the 200 persons examined 85 had infected prostates. This seems a large percentage and is startling when we remember the incidence of focal infection in other sites. Of the 85 infected 58 gave a history of *Neisser* infection from two to forty years previously. A classification of these cases with infected prostates follows:

Nine had lumbar and sacral spondylitis and sought treatment for lame back.

Fifteen had lumbago or sacro-iliac disease where no evidence of other secondary infection was found.

Seven came for nervousness and rapid heart; three of these had infected tonsils.

One was sent by an oculist; the patient had iritis.

The worst possible prostate was found in

one case as the only cause of focal infection. He had consulted two other internists and the prostate had not been examined.

Three had duodenal ulcers, in addition very bad prostates.

Six came for weakness of sexual power. The ages of these men were from 35 to 43 years. The prostates were found badly infected and there was marked prostatic hypertrophy.

Two had had vigorous endocrine treatment, but no prostatic examination. Genito-urinary specialists say that prostatic trouble of this kind is the most frequent cause of early loss of sexual vigor. One was a case of early senility in a man of 53. He had a badly infected and hypertrophied prostate with all senile changes marked. Sexual vigor was lost at 40.

One of these 85 has spurs on the ossa calcis of both feet.

Four had sciatic rheumatism.

Five came for rheumatism, which was in all probability a subdeltoid bursitis.

Four had pulmonary tuberculosis, but also clear-cut prostatic infection. In none had the prostate been examined.

Fifteen came for diagnosis as to why they were nervous, loss of weight, aching bones and constantly catching cold. Massage of the prostate with other treatment benefited part of them.

Two were diagnosed sexual neurasthenics of the worst sort. They had the symptoms of fear of sexual impotence, etc.

Four were diagnosed general neurasthenics of the worst sort. They had the physical fears, the so-called indigestions, the fatigue states, etc.

Five had so-called chronic rheumatism with stiffened joints at times. Three of these had occasional subacute attacks with some redness and swelling, one had a beginning arthritis deformans, one seemed more like gout than rheumatism, in one the prostate secretion showed streptococci in almost pure culture.

Neilson says a study of focal infections in general has led him to formulate the statement that there is no recognized set of symptoms. The symptoms found are the individual symptoms of each type of secondary effects. He says the average physician and many internists in their search for the nidus of focal infection neglect the prostate which he believes is one of the most frequent sources of focal infection if not the most frequent.

We might consider here the importance of such limited areas of infection in the production of so many systemic conditions. No

specialty in medicine can safely disregard these limited areas. The surgeon is forced to consider them in order to decide whether the condition is primary or is secondary to a distant focus. The internist perhaps more than the surgeon must turn back from the result to find the cause. The gynecologist, orthopedist, gastro-enterologist and often even the oculist must search far away from the site of lesion to find the cause. In fact, we have hunted for these distant foci of infection so often that many of us have developed a foci complex or perhaps we should say a "fociphobia." Perhaps this was a natural development after observing the marvelous results of extracting a tooth or removing infected tonsils. We study sinuses, gallbladders and gastro-intestinal tracts but when the patient says he never had gonorrhea we forget the prostate gland. For many years it was thought that the prostate gland only became infected after a gonorrheal attack. We now know that a large proportion of prostatic infections are in no way related to gonorrhea.

According to Pelouze, an enormous percentage of males having infected teeth and tonsils also have infected prostates. He claims there is what he calls the male focal infective triad, i. e., teeth, tonsils and prostate gland. This close association has not been sufficiently stressed and therefore we often fail to investigate the relation of an infected prostate to a distant focus. It is asserted by investigators that 35 per cent of adult males have infected prostate glands. One can readily understand how the gonococcus prepares the soil and other bacteria continue the infection in postgonorrheal prostatitis, but the transmission of the agent in that large group of infected prostates with no history of gonorrhea, is not so easily comprehended. Is it through the lymphatics or along the urethra by continuity of surface, or through the blood stream from a distant focus? That it is practically impossible to clear up an infected prostate as long as the apparently causal focus persists in teeth or tonsils has been demonstrated. Pelouze quotes a case: The patient because of a slight nocturnal frequency of urination presented himself for prostatic study six times within a year. Each time the prostatic secretion had been found absolutely normal. Some weeks after the sixth study, the patient experienced an acute inflammation of one tonsil. When studied again six weeks after this event his prostatic secretion contained countless large masses of pus and the gland had become acutely tender and decidedly enlarged.

Of the two groups of infected prostates, the first, i. e., those following a gonorrhea and the

gonococcus having long since disappeared from the field and secondary invaders having entered, includes most of the cases. The second group, which is important and by no means small, includes the patients who never had gonorrhea.

Of the various conditions which can be attributed to an infected prostate, arthritis probably heads the list. That arthritis may be due to focal infection is well known as is also the association of the gonococcus with certain forms of arthritis. More recently we have discovered that the prostate gland itself may be a focus of infection.

In 1924 Nickel and Stuhler of the Mayo Clinic at Rosenow's suggestion, began culturing prostatic secretions obtained by massage. They used Rosenow's method, which had been used successfully in other diseases, i. e., injecting the organisms recovered from the culture into rabbits and observe localization.

From October 1925 to October 1929 they made cultures from approximately 400 cases of arthritis in which the prostatic gland was thought to be a focus of infection. Of this group seventy-one contained organisms with an affinity for joints. The causative organism was usually a green-producing streptococcus, although in a few instances it was a gram-positive coccus resembling staphylococcus albus, proved to be pathogenic by producing arthritis and isolated in pure culture from the joint. This organism may be similar to the staphylococcus-like organism reported by Crowe which he believes has significance in arthritis.

In correlating foci in eighteen cases where all possible foci were searched for and cultures made, Nickel and Stuhler found no focus in four cases; foci in the prostate gland in twelve cases; foci in the tonsils in two cases. In five cases the prostate gland was a focus and no foci were found elsewhere; in seven the prostate gland was a focus but in three of them the teeth were also sources of infection; the tonsils were the foci in four cases. That these foci are interrelated or harbor the same microbes was shown when the organisms isolated from the various foci in a given case produced arthritis in rabbits, and the strains on recovery from the affected joints acted similarly on different sugar mediums. These investigators reported a case which illustrates the value of adequate treatment of all foci, especially of the prostate gland when it is shown to be a focus. The report follows:

A minister, aged 63, entered the clinic in July, 1926. Had an attack of arthritis for the first time in 1891. Remained well after that until 1913 when he had a second attack. A year later had a third attack which confined him to bed for a week. The fourth attack began in March, 1926, and thereafter



he had pain in the back and neck. Also had occasional attacks of neuritis since 1913, but during the last year these had become much worse and involved chiefly the extremities.

Examination showed an elderly man with marked limitations of motion of the spinal column, hips and shoulders. Tonsillectomy two years previously. A nasal polyp, three pulpless teeth, prostate graded 4, and marked nocturia were noted. Roentgenograms of the spinal column and sinuses gave negative results. Treatment of the prostate gland was advised after adequate treatment of the other foci. A fistula of the antrum was curetted, the nasal polyp removed and the three pulpless teeth extracted. Cultures from the teeth consisted of green-producing streptococci which produced arthritis in rabbits when injected intravenously. Cultures of the prostate gland also consisted of green-producing streptococci.

These freshly isolated cultures of the prostate gland were injected intravenously into two rabbits; each received two daily injections of 5 c.c. of a 24-hour glucose-brain broth culture. Three days later one of the rabbits favored its hind legs when hopping; on the sixth day it was dead. The joints of both hind legs were enlarged and the tissues about them markedly hyperemic. There was seropurulent fluid in each knee joint. Cultures of the blood remained sterile but cultures of the joints contained green-producing streptococci. Gross evidence of arthritis developed in the other rabbit on the fourth day. It refused to hop and acted as if trying to protect its legs. It lived six days. Necropsy showed enlarged knees, enlarged right wrist and right elbow. Seropurulent fluid obtained from all the affected joints. Green-producing streptococcus was isolated from the infected joints.

The patient was given treatment by massage and instillation of the prostate gland and the joints were treated with light and heat. One month later he was much improved clinically and the prostatitis 75 per cent improved.

He returned home and two months later came back for reexamination. He had continued the prostatic treatment and was feeling much better. He was advised to continue the prostatic treatment and dismissed. One year later he returned feeling considerably improved. Returned again in February, 1929 (one and a third years later), when general examination showed no prostatitis and he had no rheumatic pain.

That it is often difficult to eradicate a focus in the prostate gland is common knowledge to those practicing in this field. It can always be done but sometimes requires much perseverance. Nickel and Stuhler report a case illustrating this difficulty:

A man, aged 22, entered Mayo Clinic in June, 1924. Had arthritis of the left hip since childhood. Two and a half years ago the pain in the hip began again with stiffness in all joints of the body, especially in the shoulder, neck and back.

Examination revealed a tall, asthenic, young man, who walked with difficulty. There was definite limitation of motion of the shoulders and hips. Roentgenogram showed hypertrophic arthritis of the upper lumbar and sacro-iliac joints. The tonsils had been removed elsewhere. Prostatitis graded 3. Prostate gland treated locally for two months. Condition had improved and patient was dismissed.

After nine months he returned. He had continued to improve until he contracted influenza when the arthritis became much worse. Since then recovery

had been tedious. Prostate gland treated again for about seven weeks after which he felt very well and was dismissed in August, 1925. He returned in October, 1927, with a relapse. On examination they found residual prostatitis graded 3 and one pulpless tooth.

Cultures from the prostatic gland showed green-producing streptococci. The pulpless tooth was extracted. One rabbit was injected with a culture of streptococci obtained from the prostatic secretion. Seropurulent arthritis of both knees developed and the animal was unable to hop. The animal was chloroformed 12 days after injection. Necropsy showed enlarged knees containing seropurulent material and cultures showed green-producing streptococci. Two rabbits were given injections of freshly isolated cultures of the apex of the extracted tooth. Symptoms of arthritis developed in both rabbits. One rabbit was chloroformed one week after the first injection and seropurulent arthritis of the right knee joint found and cultures showed green-producing streptococci. The other rabbit was chloroformed 12 days after the first injection and arthritis was seen in both knee joints and the right shoulder. Cultures yielded streptococci.

Nickel and Stuhler draw the following conclusions from their observations of 400 cases of arthritis:

Cultures of the prostate gland from patients with arthritis often contain green-producing streptococci which had a selective affinity for the joints of experimental animals when injected intravenously.

Leaving arthritis we will consider other diseases produced or influenced by infections of the prostate.

DeSchweinitz reports three types of disease of the cornea which were favorably influenced by the cure of an infection of the prostate. The prostatitis was nonvenereal and all other methods of treatment had failed. He says these cases lend support to the observation already made that besides the foci of infection commonly found in the teeth, tonsils, etc., a non-venereal prostatic infection may be an important one. The death of reported cases of ocular inflammation in which the prostate harbored the infection by no means indicates that they are either rare or not always recognized. Several noted ophthalmologists besides DeSchweinitz have stated that they are finding more and more cases in which this relationship has been established.

B. A. Thomas has written a brief summary of the relation of prostatic infection to metastatic inflammation and the treatment of the focus of infection.

Ocular inflammation, due to remote foci of infection, such as are commonly harbored in the prostate and seminal vesicles, although prevalent, is not nearly so common as joint involvements, other complications, and sequelae of gonorrhea.

Iritis and cyclitis comparatively with certain

complications such as epididymitis, occur late. This can be explained by the fact that epididymitis occurs by direct extension through the structure contiguous to the urethra and its appendages, while iritis and cyclitis are indirect extensions through the blood or lymphatic circulatory systems, only after the regional barriers have been broken down. Doubtless the most important measures in the management of such ocular inflammations are the local treatments by massage of the prostate and seminal vesicles, irrigations, dilatations and instillation or topical applications to the urethra. The prostate may be the source of infection in certain inflammations.

The prostatic infection is probably more often nongonococcal than gonococcal.

The metastasis, as in other focal infections, may occur in any of the ocular tissues susceptible of inflammatory reaction, but the uvea and cornea are probably most often involved, the latter and also the iris alone, especially when the gonococcus is present.

The fact that an inflammation persists after the removal of a suspected focus of infection does not prove that this is not the primary source of infection, as the resistance of the tissues may have been so reduced by this inflammation as not to be able to withstand the action of organisms or toxins of much less virulence from some other part of the body. Only when a metastatic inflammation subsides after the removal of one possible source of infection does it prove this to have been the exciter.

According to Beynon, prostatitis is more prevalent than is usually considered, 35 per cent of all males being affected. Hugh Young states it is as prevalent as gonorrheal urethritis which of course brings it to a much higher percentage. Quite a number of infected prostates give no history, and truthfully so, of venereal infection, and surprisingly show a chronic prostatitis which when eliminated proved to have been the site of a deep-seated and obscure focal infection. In the Mayo Clinic, of 1,627 patients afflicted with chronic prostatitis, 76 per cent gave a positive history, 4 per cent had an indefinite history and 20 per cent emphatically denied any venereal history.

It might be well at this time to mention some of the remote general complaints frequently associated with prostatitis. Among these are: Myalgia and arthritis, especially in sacral regions and lower limbs. Remote abdominal symptoms. Inguinal tenderness is often mistaken for signs of an inguinal hernia. Gastric and duodenal ulcer, especially in prostatitis, are reported in Mayo Clinic frequently. Sexual

disturbance, due to close association of sexual organs with central and sympathetic systems. Mental disturbance producing pronounced psychic signs and other melancholia. Nervous symptoms; these are very important and demand early recognition. Malaise and ill-defined headaches. Eye conditions, chiefly iritis. Anemias, loss of weight, appetite and other evidences of focal infection. Walther includes osteoperiostitis, arthritis, arthralgia (particularly of the lumbosacral joint.) Synovitis, myalgia and some types of neuritis are accountable largely to some focus of infection for their chronicity and failure to respond to the usual lines of treatment. That a large proportion of these conditions in the male is due to infected prostates and vesicles is attested to weekly.

During the period from 1912 to 1917 W. S. Pugh carried out a series of studies in 500 cases of chronic prostatitis. In this series the history was definitely postgonorrheal. His bacteriological findings were:

Staphylococcus albus .....	15%
Staphylococcus aureus .....	6%
Staphylococcus citrens .....	1%
Streptococcus hemolyticus .....	1%
Streptococcus, nonhemolytic .....	1%
Bacillus coli .....	34%
Bacillus pyocyaneus .....	1%
Sterile cultures .....	37%
Bacillus proteus .....	1%
Micrococcus catarrhalis .....	1%

Similar researches by others have closely approximated these observations. In a study of 358 cases of chronic prostatitis, Young and Geraghty found 75 per cent were due to venereal causes.

Garvin defines nongonorrheal prostatitis and vesiculitis as cases in which the gonococcus cannot be held as the causative agent. In non-specific infection there are noted the following facts: (1) There is no history of gonorrheal infection; (2) if there is a previous history of gonorrheal infection, there must be no present evidence, clinically or culturally, of gonorrhea. The absence of the gonococcus or the failure to find the organism does not exclude an earlier infection; (3) there must be definite evidence of inflammatory changes in the prostate and vesicles:

It is most important to be able to differentiate between these two types of infection, because mistakes in diagnosis may bring much suffering, unhappiness and maybe disaster. Nonvenereal prostatitis and vesiculitis are much more common than is realized. They may result from foci of infection.

Smith reports 40 nonspecific cases observed over a period of four years.



In studying the many aspects of this subject something should be said about the pathology so now I shall speak about the pathology of the infected prostate of nongonorrheal origin. There are two types of prostatitis, the follicular and the interstitial; at least they have been so classified.

Pelouze says it is impossible to differentiate these two classes clinically. In fact, he says it is questionable if either process ever exists alone. Infected prostates may differ in size, consistency and shape, but the point of most importance is what their secretions show.

The smooth hard gland makes us think of carcinoma. The nodulated gland may mean tuberculosis or malignancy. Another type mentioned by Pelouze has very small nodules and is extremely sensitive to digital manipulation, even gentle pressure causing acute pain and any rough manipulation causing long continued pain. Careful palpation of these prostates usually shows that they are not as smooth as in the ordinary case but impart to the finger the sensation of having small indurated areas in them, or at times very small nodules that render the gland surface definitely irregular. This type of gland is frequently encountered in chronic arthritis with much deformity. Even the gentlest stroking of the gland causes marked increase in all the distant symptoms for varying periods of time.

In the treatment of chronic infection of the prostate massage of the gland and seminal vesicles is the keystone. This should be done at regular intervals and be followed by intravesical irrigations combined with posterior intra-urethral instillations, urethral dilation and at times urethroscopic applications. To get results in the treatment one must consider each case individually. The amount of force and the time and frequency of massage are variable. It may be safely performed at intervals of from three to five days.

Urethral dilatation as an adjunct to massage is important. It seems to cause a reaction with resulting absorption of tissue infiltration. Dilatations may be accomplished with metal sounds or by the Kollman dilator. Dilatation is especially indicated in cases of urethral infiltration and where slight discharge persists in spite of massage.

In complications, protein shock treatment has been used with benefit. Von Lackum points out the use of aolan at the Mayo Clinic and Morrissey says this routine is not to be disregarded. Garvin uses aolan in 10 c.c. doses at three-day intervals for five injections and allow's one week's rest before repeating if the prostate remains sensitive and boggy. It is

very beneficial when combined with local treatment. According to Herrold, the prostate and seminal vesicles may be recipients of infection from foci outside the genito-urinary tract.

The clinical evidence of improvement of the infected prostate and seminal vesicles following removal or drainage of infected areas in the teeth and about the nose and throat is considered proof of this relationship. Wildholz, Swinburne and a number of other observers in recent years have called attention to this route of infection as a source of prostatitis with or without the associated signs of nongonorrheal arthritis. If there are symptoms of toxic absorption together with an infected prostate and if there is no improvement in the local condition after six weeks of massaging, then the prostate is not the sole cause and we must look elsewhere.

How long must treatment of infected prostates continue?

The consensus of opinion, judging from the literature, is that if there is pus in the prostatic secretion after treatments of twice a week for three months the patient should be given a rest of six or eight weeks. After the rest period he will be better and will respond promptly to the second course of treatments.

Irrigations in conjunction with massage are usually indicated in those who have had a recent gonorrhea or cystitis. In the absence of these it is unnecessary to give intravesicle irrigations. The patient retains his urine prior to the massage and voids afterward thus carrying away the expressed purulent secretion.

The most frequent obstacle encountered in local treatment is the failure of the pus to disappear entirely. This may be due to the method of treating, as for example: (1) Massaging the gland too roughly; this often increases the irritation already present; (2) too frequent massaging; (3) irregular treatment or massage. Failure to treat or eradicate distant foci will retard recovery and a badly damaged prostate with little normal tissue and thick-walled cavities that cannot collapse will of course prevent it.

#### SUMMARY

There seems to be a surprisingly large number of individuals with infected prostate glands. Some workers in this field claim that 35 per cent of all adult males are sufferers. Many of them never had gonorrhea.

As a focus of infection the prostate ranks next after teeth and tonsils according to Pelouze and others.

That there is a close relationship between infected teeth and tonsils and the infected pros-

tate is evident, both clinically and experimentally, and that the former may be the cause of the latter has been definitely proved at Mayo Clinic and elsewhere.

Prostatic massage will cure the condition provided there are no other foci. If other foci are present they should be eradicated if possible.

In conclusion I might say that the study of focal infection of the prostate gland has proved interesting to me, not so much perhaps because of its frequency, but because of its close association with other foci of infection which taken together or separate may produce almost any disease listed in the medical dictionary.

#### REPORT OF CASE

Charles H., a farmer aged 43, had been under treatment for lumbago and right-sided sciatica periodically for two years. Complained of sharp, knife-like pains, down the back of the right thigh and into right leg.

Had been treated with electricity, light, heat, hot baths, and had taken salicylates and potassium iodide over a period of weeks without much relief. Tonsils were removed years ago and one tooth which a roentgenogram showed was infected had been removed six months before coming to me.

He was unable to do much work about the farm owing to difficulty in walking, and especially in climbing ladders.

There was extreme tenderness over the region of the sciatic nerve and right sacro-iliac joint.

Examination showed no focus of infection until the prostate gland was palpated and found enlarged and tender. No history of gonorrhea.

Prostatic secretion showed moderate amount of pus cells, many colon bacilli and a few streptococci.

Within the first 36 hours after massage the symptoms were greatly aggravated, in fact he experienced much difficulty in getting out of bed the next morning. Returned two days later for treatment. Massaged the prostate every four or five days for ten weeks; after the first four or five treatments he felt greatly improved and continued to improve until cured. He has remained well and free from symptoms for the past 14 months.

407 Kirkpatrick Building.

## ABNORMAL PSYCHOLOGY OF SEX

### A BRIEF INTRODUCTION\*

J. PHIL EDMUNDSON, M.D.

KANSAS CITY, MO.

In presenting this modest paper on some of the abnormal aspects of the psychosexual function, I feel that a foreword of explanation is necessary in order to make my position a tenable one. The subject is one with which the general practitioner rarely concerns himself, chiefly because of rather hazy ideas on the matter but to a lesser degree because the subject is distasteful to him.

To the average normal, virile man, the medical man not excepted, there seems to be something just a little revolting in considering some of the unlovely aspects of a deranged sexual appetite. And because he regards the afflicted individuals as being morally unclean, necessarily the subject itself must be unclean and he refuses to be calumniated by contact with it.

However, such an attitude of intolerance, had it been manifested toward other and perhaps as little pleasant aspects of medicine, could have but resulted in stagnation and retardation of medical science. The fact that as medical men we are accustomed to accept the pleasant along with the unpleasant things associated with our profession is largely accountable for the justifiably high standing we occupy among our fellows.

It seems somewhat trite, at this point, to emphasize the importance of the general practitioner in the general scheme of medicine. He needs no defense, and I mention him here only to call his attention to the growing need for a greater familiarity with a subject which, under the pressure of various forces, he has neglected.

In the matter of sexual psychology, an attitude of cold aloofness might seem to be justifiable were it not for the influence of such men as Havelock Ellis, von Krafft-Ebing, Moll, Adler, Freud, Hirschfeld and many other able investigators in this field. These men not only have approached the matter with open minds and unblushing countenances, but have raised it from the mire and innuendo of pornography to its proper level of medical science.

To these men we owe the now more or less standardized terminology used to express the finer nuances of meaning which are necessary for an accurate description of the various psychologic syndromes. It seems reasonable to assert that without an intelligible language of medicine there can be no understanding of things medical. Exact anatomic terms were necessary in order to teach anatomy. Disease entities no longer are called by the names of their discoverers but by terms descriptive of the clinical pictures by which they are recognized. And so it is with what may be called this "step-child" of medicine. Until he learns to talk we will misunderstand him, but after he has learned we must be prepared to speak his language.

Before the pioneering efforts of Ellis, Freud, Krafft-Ebing and others, all contrary sexual manifestations were loosely lumped under the blanket term of degeneracy, or perversity, or unnatural relationship, and there the matter ended. No distinction whatever was made between revolting sexual crimes occurring as in-

\* Read at the staff meeting of Wesley Hospital, December 17, 1930.



cidental factors in individuals obviously insane and those milder, and quite sane, homosexual tendencies now known by their exact terms of inversion, transvestism, tribadism, masochism, as the case may be.

The great need now lies in a better understanding of the problems presented by the psychology of sex; by a broader and less prejudiced view of its many intricate phases, and for looking the issues squarely in the face instead of viewing them askance. Carcinoma to some of us may be a loathsome, repulsive, malodorous thing, but certainly it is true that pathologists have even found beauty in it.

As the facts stand at present, the laity actually are better informed about the practical effects of certain types of homosexuality, notably that of inversion in women, than the average physician whose knowledge of the subject has been gained from a curious and cursory glance through "*Psychopathia Sexualis*," bought somewhat guiltily during his student days.

This may seem at first glance to be an extravagant statement, but when I remind you of the publication during the past two years of three best selling novels dealing with sexual love between women, or inversion, as their central theme, followed by lesser books of the same trend, you may rest assured they not only were widely read by both sexes of all ages but as widely discussed.

There may be some objections to my expressed belief that homosexuality in its various phases is on the increase in this country, but there can be little doubt of the fact that there is more discussion of it. The first popular novel of recent years dealing with the subject, written by a woman herself inverted, blazed the trail for a flood of lay literature on matters that in former years was, to say the least, taboo.

At this point it might be well to state that the broad, general term of homosexuality is used to indicate any and all forms of sexual attraction between members of the same sex, whether manifested through physical contact in one of several ways or by idealistic association. Thus, it ranges all the way between transvestism, or so-called cross dressing in which the individual affects the clothing of the opposite sex and no more, to the passionate and compelling state of sexual inversion in which the equivalent of coitus becomes an obsession. It is this latter condition that has given rise to newspaper headlines, from time to time, of the accounts of women being "married" to members of the same sex, to be discovered only upon the advent of the "husband's" fatal illness.

Innumerable instances could be mentioned of this curious and intriguing subject of homosexuality having excited popular interest, but these cases in themselves constitute a relatively small part of sexual aberration. The most that one can possibly do in a paper of this scope is to touch the high lights on the subject, mentioning the more frequently encountered conditions in the hope they will stimulate you to investigate the rest.

My subject matter thus far has dealt with what may be called a misdirection of the sexual impulse toward members of the same sex. In this it becomes a pathologic libido, because it can find no natural biologic means of expression. However, if we once accept the idea that one's libido may be excited through means other than normal heterosexuality, or coitus between opposite sexes, we are then prepared to expect it to become aroused through sundry and divers agencies.

Thus we are led to consider a large group of cases coming under the classification of fetishism. Not infrequently the newspapers carry headlines having to do with the exploits of a mysterious individual who, while walking on the street in broad daylight, clips the locks from women's heads without further molesting them. Usually such headlines are captioned "Jack, the Clipper"; "Mysterious Maniac Menaces Milady," or similar inane titles.

Mr. and Mrs. John Doe, while reading the items with mild interest attach utterly no sexual significance to the story, whereas hair fetishism is a rather important subdivision of aberrant sex psychology, furnishing, as it does, not less than ten per cent of all forms of perverted sensuality.

If the above culprit be apprehended usually it will be found upon examination that while he may display some of the stigmata of degeneracy, for the most part he will display a fairly normal mentality on every subject except his fetish, by the aid of which, he obtains sexual gratification through one of several means.

Then, there is glove fetishism, shoe fetishism, handkerchief fetishism and many others. In every case the adored object is used merely as a means toward stimulation of libido, after which erection, ejaculation and detumescence follow in the usual manner.

To those who are reluctant to accept these two deviations from the sexual norm as being capable of existence without a coexistent grave mental disorder, I would cite innumerable instances of the hair-line subdivisions between so-called normal and abnormal psychologic reactions generally.

There are few thinking persons who are un-

willing to admit the very close relationship between love and pain. Up to certain limits this is quite normal. The so-called "love bite" exchanged between lovers, the playful pinchings, slappings and the like that actually cause discomfort nevertheless are welcomed when coming from the loved one, and no one questions their entire normality.

However, let us see what happens if an undue amount of pain is given or received with the end in view of producing sexual excitement or gratification. In the first instance, we have sadism, one of the perversions that is a menace to organized society. In the second instance we have the reverse of sadism which harms no one but the individual subjected to the pain. It is called masochism.

Thus we see that the exaggeration of what is a perfectly normal psychologic response becomes an entirely different and perhaps a dangerous obsession. In a like degree fetishism becomes abnormal only when it seeks the extremes for gratification. What lover has not admired the sheen and texture of his loved one's hair? Who has not felt moved in the presence of certain articles of apparel worn by one held in high esteem? Is there anything abnormal in that? Most assuredly not. But when it becomes essential that an article of dress, a lock of hair, or a worn glove be fondled in order to stimulate libido or to promote ejaculation, then it may properly be regarded as sexual aberration.

If it is true, then, that but a fine line of distinction may be drawn between many of the sex deviations and the normal sexual instinct, it is but natural for us to expect to encounter a number of the so-called borderline cases. And in this expectancy we are not disappointed. They represent the hysterics, the frigidities, the psychic impotencies, the sterilities, the hundred and one neuroses that Freud unsuccessfully attempted to unravel by his various methods of psychoanalysis.

We need not go into the remedy at this time. Perhaps there is none. The fact remains that we, as physicians and not as psychologists, should at least preserve an open mind toward a group of unfortunates which I believe to be steadily enlarging. Hitherto, most of the work done in this field has been done by alienists, jurists and sociologists, with most of whom the human element has been a secondary factor. It remains for the general practitioner of medicine, the "family doctor," if you will, to direct his benign and humanitarian eye upon the lesser understood frailties of what is, at best, a most fragile mankind.

In order that he may direct an intelligent, a seeing, as well as a benevolent eye, it first be-

comes necessary for him to realize the necessity for insight and, having seen, to interpret what he sees without prejudice and without shame.

Unfortunately, this phase of medicine has offered its devotees few opportunities for graduate instruction, as have the other special fields, for in spite of the ubiquity of homosexuality and of the true perversions there is not a single clinic or postgraduate school, here or abroad, offering material for study. Of gynecological clinics there are many; of psychiatric centers there are plenty. But this study of abnormal sexual psychology, while it belongs in part to both the fields of gynecology and psychiatry, with perhaps a bow to urology, occupies a position more or less unique, and in the final analysis will occupy a place in medicine beside that of its present dependents.

In closing, I wish to recall your attention to the title of this little paper, which claims to be an introduction, a most inadequate introduction, to a large and increasingly important phase of this hectic social system under which we live. If I have succeeded in arousing your interest in a closer study of and a greater tolerance toward these "stepchildren" of medicine, the task will have been well worth while.

325 Argyle Building.

#### NONMALIGNANT NODULES OF BREAST THE RESULT OF PROLAPSE

Lillian K. P. Farrar, New York (Journal A. M. A., Nov. 1, 1930), finds that prolapse of the vaginal atrophic breast is occurring with alarming frequency in this country owing to the present fashion in dress. There is danger of permanent prolapse of such a breast, and perhaps danger of cancer developing from prolonged stasis of breast tissue. Plastic operation for prolapsed atrophic breasts is an unnecessary mutilation of a young girl. Plastic operations on prolapsed atrophic breasts will deprive nursing mothers of breast tissue and milk ducts with too little tissue left for nursing and possibly "caked" breasts and abscesses of the breasts as a result. The change of dress with proper uplifting support of the breast will cure the condition if treatment is begun early.

#### PSITTACOSIS

T. M. Rivers, G. P. Berry and C. P. Rhoads, New York (Journal A. M. A., Aug. 23, 1930), conclude from their studies that the virus of psittacosis is in the feces and in the material collected from the nose, mouth and procrop of infected parrots. Parrots and monkeys can be infected by intranasal instillations of the virus. Parrots and rabbits that have recovered from a primary infection are refractory to reinfection. It is not a simple matter to demonstrate neutralizing properties in convalescent human serum. In parrots and in mice, the principal lesions occur in the liver and spleen. Young monkeys (*Macacus rhesus*) are susceptible to intracerebral, intratracheal and intranasal inoculations of psittacosis virus. When it is instilled in the nose or injected in the trachea a characteristic pathologic picture occurs in the lungs which is similar to that observed in man.



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JUNE, 1931

## EDITORIALS

### THE JOPLIN SESSION

Our members in Jasper County earned the gratitude and admiration of every physician who attended the 74th Annual Session of our Association in Joplin, May 11 to 14, for the generous hospitality extended and the close co-operation with the officers in making the meeting one of the most successful we have ever held. Every member of the Committee on Arrangements faithfully looked after the affairs placed in his charge; if any one felt that he was entitled to complain he failed to mention the circumstance.

Convening promptly at 9:30 on the morning of Monday, May 11, the House of Delegates rapidly concluded the business affairs of the Association which came before it on that day and the Council also gave attention to the matters referred to it by the House of Delegates.

The amendment to the Constitution introduced at the Hannibal Session providing for three vice presidents was adopted. The By-Laws were amended so that applicants who "reside or practice" in a county may be elected members, this change being made in order to establish the legality of membership for those who live in contiguous states but in which they are not licensed to practice and hence are not eligible to become members in those states.

A committee on cancer was added to the standing committees with the duty of ascertaining the status of cancer control and treatment in the state and to cooperate with the American Society for the Control of Cancer.

The scientific program was universally praised as being a well balanced collection of papers of high interest to the practitioner and contributed by men who are well prepared to discuss the topics. With fifty-six papers listed only two essayists failed to appear when their names were called. One of these had wired that a patient in a very critical condition prevented him from attending the meeting.

President Gayler conducted the sessions in a most creditable manner. He was generous with the speakers in the matter of time limit yet did not permit them to delay the proceedings unduly. It was a compliment to the essayists that the hall was well filled with listeners at all sessions.

At the open meeting Tuesday evening, Dr. Morris Fishbein, Chicago, Editor, *The Journal of the American Medical Association*, one of our guests, delivered a stirring address entitled, "The Trend of Medical Practice," and for 50 minutes held an audience of about 500 in close attention to his instructive and entertaining remarks. Dr. Alton Ochsner, New Orleans, professor of surgery, Tulane University Medical School, delivered a very practical and easily understood discourse on "What One Should Expect of the Physician and Surgeon," and our President, Dr. Gayler, in his address on "Rapid Changes in Thirty Years" made plain to this lay audience the horrors of medical practice particularly obstetrical practice in preantiseptic days.

The entertainments provided by the Committee on Arrangements furnished enjoyable relaxation from the scientific proceedings. A boxing match between professional pugilists, a buffet supper and vaudeville entertainment contributed by highly talented artists from Kansas City, sight-seeing drives along the scenic highways surrounding Joplin, a golf tournament and a trap-shooting tournament added much to the pleasure and recreation of the members.

Dr. Joseph W. Love, Springfield, was elected President-Elect; Drs. Joseph Grindon, St. Louis, P. D. Gum, West Plains, and B. W. Hays, Jackson, were elected Vice-Presidents. Dr. George W. Hawkins, Salisbury, was re-elected Treasurer and Dr. E. J. Goodwin, St. Louis, was reelected Secretary-Editor. Drs. Emmett P. North, St. Louis, and E. J. Goodwin, St. Louis, were reelected delegates to the American Medical Association.

Jefferson City was selected for the place of meeting for 1932.

The attendance was 378.

### IMPORTANT NATIONAL MEETINGS AT ST. LOUIS

St. Louis physicians will be host to two national associations during the early part of June. The American Laryngological, Rhinological and Otological Society will convene for its thirty-seventh annual general meeting, June 3, 4 and 5, and the American Bronchoscopic Society will hold its fourteenth annual session June 6.

A unique feature of the session of the

Laryngological, Rhinological and Otolological Society will be Research Day. The meeting will resolve itself into small groups each of which will attend demonstrations in the morning under the direction of Dr. Lee Wallace Dean, St. Louis, in the auditorium and various laboratories of the Oscar Johnson Institute and the McMillan Eye, Ear, Nose and Throat Hospital. In the afternoon demonstrations will be under the direction of Dr. Max A. Goldstein, St. Louis, and presented at the Central Institute for the Deaf. The demonstrations will be made principally by St. Louis members of the society and other specialists in St. Louis who have been invited to assist in these research presentations.

The program of the one-day session of the American Bronchoscopic Society consists of papers presented by members of the society and several St. Louis physicians who have been invited to deliver addresses.

The occurrence of the meeting of these two societies devoted to diseases of the ear, nose, throat and chest at this time will give those who attend the sessions an opportunity to inspect two new institutions devoted to the diseases of these organs, i. e., the McMillan Eye, Ear, Nose and Throat Hospital and the Oscar Johnson Institute for Research in Ophthalmology and Otolaryngology. The building in which these two institutions are housed was completed early in 1931. It is an eleven story structure, the hospital having 150 beds divided between ophthalmology and otolaryngology. One floor is reserved for private patients, another for semi-private patients and a floor for colored patients. The Oscar Johnson Institute occupies the upper five floors of the building and houses the offices and research laboratories.

Dr. M. A. Goldstein, St. Louis, is president of the Laryngological, Rhinological and Otolological Society and Dr. Henry B. Orton, Newark, New Jersey, is president of the American Bronchoscopic Society.

Headquarters of both societies will be in the Coronado Hotel where some of the meetings will be held. Members of the medical profession are invited to attend the sessions.

#### MEDICAL DAY AT STATE UNIVERSITY

The School of Medicine of the University of Missouri observed the second annual Medical Day at Columbia, April 17. Medical Day was observed first in 1930 being planned as an annual event open to the faculty, students and alumni of the medical school and physicians of the state.

Dr. Walter E. Dandy, Johns Hopkins Uni-

versity, Baltimore, guest of honor, delivered an illustrated lecture on "New Operative Procedures for the Treatment of Lesions of the Cranial Nerves." Dr. Dandy is a native Missourian, born in Sedalia April 6, 1886. He earned his A.B. degree at the University of Missouri in 1907 and in 1928 the university conferred upon him the honorary degree of LL.D. He received his medical degree from Johns Hopkins University School of Medicine in 1910 and is now associate professor of surgery in charge of surgery of the nervous system at Johns Hopkins University. In his address on Medical Day Dr. Dandy described an occipital approach for section of a portion of the root of the fifth cranial nerve in cases of facial neuralgia which allows recovery of sensation in that side of the face. Several other recent improvements in the technic of brain surgery were also described.

The lecture was preceded by a dinner in honor of Dr. Dandy. Dean Edgar Allen of the school of medicine presided and introduced as speakers Dr. Dan G. Stine, professor of medicine; Prof. W. C. Curtis, of the department of biology and chairman of the biological division of the National Research Council, and Dean W. J. Robbins of the graduate school of the University of Missouri.

Members of the faculties and students of the schools of medicine and nursing, graduate students in biology, physicians of the state and alumni of the university were invited to the dinner and the lecture.

Last year Medical Day was the occasion of an address by E. V. Cowdry, Ph.D., St. Louis, professor of cytology, Washington University School of Medicine, on "Filterable Virus Diseases."

#### ASSOCIATION FOR THE STUDY OF GOITER

The seventh annual meeting of the American Association for the Study of Goiter held in Kansas City, April 7, 8 and 9, was one of the most successful meetings the society has enjoyed since its inception in 1925.

The steady growth in the membership of the association and the attendance at its sessions are proof that such an organization is needed in the medical world. The attendance at the Kansas City sessions was more than 250 and judging from the daily attendance no one missed a meeting. The consensus of opinion was summed up by one visitor who said, "It was just too good to miss."

Guests from all corners of the United States and some from Canada were present and an international atmosphere was lent by the



presence of a physician from Czechoslovakia.

The three-day program was well rounded and offered the most advanced thought on thyroid diseases with their many and varied manifestations. A meeting which allows various specialists, each interested in a certain phase of thyroid disease, to present papers, open discussions and conduct clinics and symposia makes a session not only worth while in knowledge gained but stimulates the physician to carry on his activities with a new impetus after he has returned to his practice.

Physicians in Greater Kansas City conducted operative clinics at the various hospitals and addresses were delivered by physicians who have attained eminence in the study of the thyroid gland and its diseases.

The dinner given at the President Hotel where all sessions were held was well attended and the speaker of the evening, Judge John H. Atwood, Kansas City, gave a scholarly discussion on international problems. The ladies who attended were entertained by automobile drives through the city and luncheons in down-town restaurants and at the various country clubs.

Kansas City physicians consider themselves honored in having been privileged to entertain the American Association for the Study of Goiter and because one of their colleagues, Dr. Kerwin Kinard, was president of the society.

Dr. M. O. Shivers, Colorado Springs, is the president for 1931-32 and Dr. Henry Plummer, Rochester, Minnesota, was elected president-elect. Dr. Kinard was elected a member of the executive committee.

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#### TRAINING FOR MEDICAL RESERVE OFFICERS

A fourteen-day inactive duty training for medical reserve officers will be given by Washington University School of Medicine, November 8 to 22. This course and a similar one at the Mayo Foundation, Rochester, Minn., from October 18 to November 1, were announced by Colonel George A. Skinner, Surgeon, Medical Corps, Seventh Corps Area, U. S. Army, Omaha, Nebraska.

This medico-military training is conducted under the supervision of the medical department of the army, the Mayo Clinic and Washington University providing the instructors, offices, classrooms, etc. The proposed courses are intended primarily to give medical reserve officers greater familiarity with their duties in case of a national emergency and furnish a professional "refresher" course.

The courses are so arranged that a reserve officer can devote his morning hours to clinics

or to other purely professional studies. The afternoon and evening hours will be occupied entirely with the study of medico-military subjects.

For the last two years inactive duty training has been given during the fall months at the Mayo Foundation for a two-week period because it was found difficult to grant leave to the reserve officers at the clinic for camp training in July. This is the first time Washington University has offered the course in the fall.

All expenses incurred except the salaries of regular army officers are borne by the institutions including clinical instruction in the various branches of medical practice, clinical material, laboratories, museums, libraries and lecture rooms. A group of faculty members of Washington University will give instruction and hold clinics during the period.

The advantages of the courses are summarized as: (1) A reserve officer may receive stimulating personal instruction along military lines in convenient periods of the year; (2) the course provides preparation for the examination for the next higher grade; (3) it affords a medical officer the satisfaction of knowing that he is better fitted for his present rank, (4) it provides military training combined with a professional observation course at a medical center.

Applications for the course of training at Washington University School of Medicine or the Mayo Foundation should be addressed to Colonel George A. Skinner, Surgeon, Seventh Corps Area, Omaha, Nebraska.

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#### NEWS NOTES

Dr. T. G. Hetherlin, Louisiana, was appointed coroner of Pike County by the county court, May 4, to fill the unexpired term of Mr. James H. Hendrix, recently deceased.

Dr. J. C. Lyter, St. Louis, was host at a dinner given at the Missouri Athletic Club, May 1, in honor of Dr. Frank P. Norbury, Jacksonville, Illinois. Dr. Norbury delivered an address on "The Nervous Patient." About seventy-five guests attended the dinner.

Dr. Willard Bartlett, St. Louis, delivered an address before the Fellows of the Mayo Foundation, Rochester, May 4, on the late Dr. Rudolph Carl Virchow. He traced the life history of Dr. Virchow and cited many of the outstanding contributions to medical science made by the distinguished pathologist.

Drs. M. F. Arbuckle, Alexis F. Hartmann, Otto H. Schwarz and Ernest Sachs, of St. Louis, delivered lectures at a meeting of the Lee County (Iowa) Medical Society, May 7.

The Linn County Medical Society sponsored a chest clinic held in Brookfield, April 21, by the Missouri State Tuberculosis Association. Dr. Sam H. Snider, Kansas City, conducted the clinic and was assisted by several local physicians. More than fifty patients were examined. A meeting of the Linn County Medical Society was called and practically all the members attended the clinic. Dr. Snider was the guest of the society at a noon luncheon.

The June monthly hospital clinic of the Kansas City Southwest Clinical Society will be held Tuesday, June 9, at Bell Memorial Hospital, Kansas City, Kansas, in conjunction with the Kansas City Society of Obstetricians and Gynecologists. Dr. Q. U. Newell, St. Louis, assistant professor of clinical gynecology, Washington University School of Medicine, will be the guest speaker and will deliver an address on "The Conservative Treatment of Pelvic Inflammatory Disease" at the morning session. The staff of Bell Memorial Hospital will present papers and conduct clinics. The afternoon program will be given by members of the Kansas City Society of Obstetricians and Gynecologists. This is the first session of a series of joint meetings of the Kansas City Southwest Clinical Society with various special societies in Greater Kansas City.

A study of heart disease in the United States is planned by the United States Public Health Service to begin July 1. It is estimated that five years will be required to complete the survey. The field of investigation as now charted will cover four subjects, viz. (1) the effect of certain infectious diseases on the heart; (2) the effect of toxic agencies such as lead and alcoholic poisoning; (3) overexertion and deterioration, and (4) heredity of heart disease. Some of the research work will be done in laboratories and some in the field. The public health service decided to conduct the survey because heart disease each year claims an increasing number of victims. In the United States Registration Area the affliction caused 132.1 deaths per 100,000 of population in 1900. By 1910 the rate had jumped to 158.8; in 1920 it was 159.3, and in 1929 it was 210.9. In 1927 heart disease accounted for 211,976 deaths; in 1928 the figure was 237,849, and in 1929 it rose to 245,244.

Dr. Lee Pettit Gay, St. Louis, and Dr. Levi H. Fuson, St. Joseph, were elected Fellows of the American College of Physicians at the meeting held in Baltimore last March.

Dr. Anne Walter Fearn, of Shanghai, China, discussed "China; Its Medical, Social and Political High Lights," at an open meeting of the St. Louis Medical Society, May 5. Dr. Fearn has practiced medicine in China for thirty-eight years. She is in the United States at present endeavoring to create an endowment fund sufficient to maintain the American School in Shanghai which she helped organize in 1912 for the purpose of educating the children of Americans residing in Shanghai.

The United States Civil Service Commission announces open competitive examinations for medical officer, associate medical officer and assistant medical officer in general medicine and surgery. Applications must be on file not later than June 30. The examinations are to fill vacancies in the Department Service, Washington, D. C., Veterans' Administration, Public Health Service, Indian Service, Coast and Geodetic Survey and Panama Canal Service. Competitors will not be required to report for examinations at any place but will be rated on their education, training and experience as they are received. Full information may be obtained from the Civil Service Commission, Washington, D. C., or the Secretary of the Civil Service Board of Examiners at the post office or customhouse in any city.

The following articles have been accepted for New and Nonofficial Remedies:

Ciba Company, Inc.

Nupercaine—Ciba

Ampules Buffered Solution of Nupercaine—Ciba, 2 c.c., 1:200

Ampules Solution of Nupercaine—Ciba, 5 c.c. 1:1,000

Solution of Nupercaine—Ciba, 2%

Tablets Nupercaine—Ciba, 50 mg.

Lederle Laboratories, Inc.

Refined and Concentrated Antipneumococcal Serum, Type I—Lederle

Mead Johnson & Co.

Mead's Powdered Brewer's Yeast

Schieffelin & Co.

Schieffelin Psyllium Seed

Swan-Myers Company

Mixed Grass Pollen Extract—Swan-Myers

Russian Thistle Pollen Extract—Swan-Myers



Dr. W. McKim Marriott, St. Louis, dean of the School of Medicine, Washington University, delivered an address at the annual convention of the Maryland State Dental Association in Baltimore, Maryland, May 5. He discussed the relation of diet to dentistry.

Dr. Buford G. Hamilton, Kansas City, and Drs. Evarts A. Graham and Ernest Sachs, St. Louis, were guest speakers at the annual meeting of the Nebraska State Medical Association held in Omaha, May 12, 13 and 14. Dr. Hamilton spoke on "What to Expect of the General Practitioner in Obstetric Practice." The title of Dr. Graham's address was "How Can We Estimate and Improve the Operative Risk in Patients With Disease of the Biliary Tract?" Dr. Sachs directed the attention of the members of the society to "Some of the More Important Points in the Early Diagnosis of Brain Tumors and Their Present-Day Treatment."

The seventeenth annual tournament of the American Medical Golfing Association will be held in Philadelphia on the opening day of the session of the American Medical Association, Monday, June 8, at the Aronimink Golf Club instead of the Huntingdon Valley Club as was previously announced. There will be many attractive and valuable prizes awarded at the annual dinner to be held at the clubhouse after the tournament. Membership in the American Medical Golfing Association is open to any male Fellow of the American Medical Association in good standing. For additional information address the Executive Office, 1124 Macabees Building, Detroit, Michigan.

A father and son dinner was given by the Jackson County Medical Society at the Muehlebach Hotel, Kansas City, April 18. Approximately a hundred members, mostly fathers and sons, attended the dinner which was planned by a committee composed of Dr. Carl Bryant Schutz, chairman, Drs. G. Wilse Robinson, Jr., A. W. McAlester, III, Radford Pittam and Albert S. Welch. Dr. William L. McBride served as toastmaster and Drs. E. H. Skinner, Harvey Jennett, H. P. Kuhn, Katharine Richardson and Frank I. Ridge responded with toasts. The evening was concluded by a comedy playlet "Then and Now" written by Dr. G. Wilse Robinson, Jr., and presented by the committee on arrangements in which the activities of the old-time country doctor were contrasted with the methods of the ultrascientific specialist of today.

The relation of diet and development and preservation of the teeth was emphasized at the thirtieth annual meeting of the American Society of Orthodontists held in St. Louis, April 21 to 23. Dr. W. McKim Marriott, dean of Washington University School of Medicine, Dr. Virgil Loeb and Dr. Vilray P. Blair, St. Louis physicians, delivered addresses.

Dr. Marriott discussed the effect of different vitamins on the growth and development of the teeth saying that whole milk, eggs, green vegetables and sunshine are absolutely necessary for the proper development of tooth structure. He pointed out that with a well-balanced and sufficient diet the mouth will be able to cope with the germs and advised that attention be turned to diet instead of trying to kill so many germs per second.

Dr. John A. Marshall, professor of biochemistry and dental pathology in the University of California, described experiments he has been conducting on monkeys to demonstrate the production of diseases of the teeth by unbalanced diet and the response to the treatment by corrected diet. Dr. Marshall classified diseases of the teeth as resulting from two causes, infection and malnutrition, the latter he said being much more widespread, more insidious in its onset and just as difficult to avoid as the infectious diseases.

The following speakers responded to requests of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of county medical societies:

Dr. Charles J. Eldridge, Kansas City, was the guest of the Jasper County Medical Society on April 12 and read a paper on "Intussusception in Children."

The Bates and Vernon-Cedar County Medical Societies were hosts to Drs. C. C. Dennie and Frank J. Hall, of Kansas City, on April 16. Dr. Dennie spoke on "The Treatment of all Forms of Syphilis by Malarial Inoculation," and Dr. Hall gave a talk on "Infections of the Mouth and Throat." The meeting was held at Butler.

Drs. Otto Schwarz and Harold A. Bulger, of St. Louis, were guests of the Cape Girardeau County Medical Society at Cape Girardeau, April 13. Dr. Schwarz gave a lecture on "Eclampsia; Its Etiology and Treatment." Dr. Bulger read a paper on "The Relation of Parathyroid Glands to Certain Types of Bone Diseases."

Drs. Quitman U. Newell and R. J. Crossen, of St. Louis, attended the April 15 meeting of the Five-County Medical Society held at New Madrid. Dr. Crossen talked on "Modern

Medical Management of Gynecological Cases." Dr. Newell read a paper on "The Diagnosis and Treatment of Gonorrhea in the Female."

On April 21 Drs. Rex L. Diveley and C. C. Conover, of Kansas City, were guests of the Livingston County Medical Society at Chilli-cothe. Dr. Diveley gave a lecture on "The Diagnosis and Treatment of Fractures of the Upper Extremities," and Dr. Conover spoke on "The Diagnosis and Treatment of Acute Rheumatic Fever."

Dr. Frank R. Finnegan, St. Louis, gave a talk on "Constipation" before the St. Francois-Iron-Madison County Medical Society at Bonne Terre, April 21.

Dr. Paul A. Gempel, Kansas City, spoke before the Jasper County Medical Society at Joplin, April 21, his subject being "Some Practical Considerations of the Cause and Treatment of Sterility."

The Marion County Medical Society was host to Dr. B. Y. Glassberg and Mrs. Richard F. Baumhoff, of St. Louis, on May 1, at Hannibal. Dr. Glassberg addressed the members on "True Diabetes and Pseudodiabetes," and Mrs. Baumhoff followed with a lecture on "Diet in Diabetes."

Dr. A. A. Werner, St. Louis, was the guest of the Lawrence-Stone County Medical Society at Aurora, May 5. Dr. Werner gave a thorough discourse on "Endocrine Conditions."

On May 8 Dr. Joseph E. Welker, Kansas City, attended the meeting of the Nodaway County Medical Society at Maryville and read a paper on "The Diagnosis and Treatment of Cardiac Edema."

A disease of a type similar to Rocky Mountain spotted fever was recently identified by the United States Public Health Service as occurring in states in the eastern and south-eastern sections of the United States. Heretofore it was thought that Rocky Mountain spotted fever occurred only in the western part of the country being most prevalent in the region of the Rocky Mountains. Like Rocky Mountain spotted fever the new malady is spread by the bite of the tick. Rocky Mountain spotted fever is often extremely severe the mortality ranging between 60 and 90 per cent.

The second annual meeting of the Clinical Conference of the St. Louis Clinics will be held in St. Louis, June 15 to 26. The conference will consist of lectures, demonstrations and clinics on medical and surgical subjects at the hospitals and in the St. Louis Medical Society building.

Among the guest speakers the following have

been announced: Drs. W. W. Duke, Kansas City; William Engelbach, New York (formerly of St. Louis); J. C. Bloodgood, Baltimore, and L. G. Roundtree, Rochester, Minnesota.

The success of the first conference held in June, 1930, has encouraged the St. Louis Clinics to conduct these courses annually. The very large amount of clinical material that can be gathered for instructive demonstration in the hospitals and clinics of St. Louis will be assembled and presented by the guest speakers and members of the Clinics. Every hour during the entire session will be filled with lectures, demonstrations and clinics on medical and surgical subjects, round-table talks and operative clinics thus providing opportunity to observe modern methods of treating diseases and of operating upon surgical conditions.

Hospitals cooperating with the St. Louis Clinics are St. Luke's, Missouri Baptist, St. John's, Jewish, Barnes, St. Mary's, St. Louis Maternity, De Paul, and St. Louis City Hospital.

The dates of the conference are happily chosen for those who wish to enjoy the musical comedy presentations offered in the unique outdoor St. Louis Municipal Theatre. The program of the theater is particularly attractive during the two weeks of the Clinical Conference.

Additional information may be obtained by addressing the St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

## OBITUARY

LEO CHRISTIAN HUELSMANN, M.D.

Dr. Leo C. Huelsmann, Colorado Springs, Colorado, formerly of St. Louis, a graduate of Washington University School of Medicine, 1905, died of agranulocytosis, April 25, aged 49. He had been ill since April 6 suffering with this rare blood disorder.

Dr. Huelsmann was born in St. Louis and received his education in the old Christian Brothers' College. Following the completion of his medical course at Washington University he practiced in St. Louis until he contracted tuberculosis fifteen years ago when he moved to New Mexico and a year later took up his residence in Colorado Springs. He recovered from tuberculosis and began specializing in the treatment of the disease and became widely known for his work in that field and in internal medicine. He was a member of the staff of Glockner Sanatorium and Hospital in Colorado Springs.

Dr. Huelsmann was active in medical affairs



during his residence in St. Louis and his loss is deeply mourned by many whose friendship has continued through the years.

Until Dr. Huelsmann left St. Louis he was a member of the St. Louis Medical Society. He was a Fellow of the American Medical Association at the time of his death.

He is survived by his widow, Mrs. Harriet Huelsmann, two sons and two daughters and a brother and sister, both of St. Louis. Interment was in St. Louis.

#### JOHN WALTER KEPNER, M.D.

Dr. John W. Kepner, Kansas City, a graduate of the University Medical College of Kansas City, 1902, died April 29, at his home after a year's illness, aged 56.

Dr. Kepner was born in Lenox, Iowa, and moved to Kansas City in 1892. He studied in the Kansas City College of Pharmacy and on completion of his course operated a drug store at Fifteenth and Olive. He completed his medical course at the University Medical College of Kansas City in 1902 and three years later founded the Willows Maternity Sanitarium. He was resident physician of the sanitarium until the time of his illness.

Dr. Kepner was a member of the Jackson County Medical Society, the State Medical Association and a Fellow of the American Medical Association.

During his residence and practice in Kansas City he gained a large circle of friends who mourn his passing.

He is survived by his widow, Mrs. Lillian A. Kepner, his mother, three stepsons, a sister and three brothers.

#### FRED M. MOSS, M.D.

Dr. Fred M. Moss, Paris, a graduate of the Kentucky School of Medicine, Louisville, 1881, died March 4 of pneumonia, aged 76.

Dr. Moss received his preliminary education in the public schools. Following the completion of his medical course he began his career and was licensed by years of practice. He was a general practitioner and served as county physician of Monroe County for seven years. He was devoted to his profession and made friends of all his patients by his kind ministrations. He was as loved by his colleagues as by his patients. In 1928 he was elected an Honor Member of the Randolph-Monroe County Medical Society. He had formerly been treasurer of the society. He was a member of the State Medical Association and the American Medical Association.

Dr. Moss contracted influenza which was fol-

lowed by pneumonia. This illness terminated a long and useful life and his death is mourned by all who knew him.

#### FRANCIS JOSEPH SULLIVAN, M.D.

Dr. Francis J. Sullivan, St. Louis, a graduate of Washington University School of Medicine, 1906, died of heart disease at his home, April 24, aged 49.

Dr. Sullivan collapsed at his home and died very shortly afterward. Firemen worked for two hours with an inhalator in a futile attempt to revive him.

Dr. Sullivan had practiced medicine in St. Louis for twenty years locating in that city soon after his graduation. He was highly esteemed by all who knew him and his early death is a severe loss to his friends and to medical society activities in St. Louis. He specialized in internal medicine and was connected with the department of hygiene of the board of education. He was a member of the St. Louis Medical Society, the State Medical Association and a Fellow of the American Medical Association.

He is survived by his widow and one daughter.

### MISCELLANY

#### IN MEMORIAM

##### Necrology Report \*

#### GEORGE W. VINYARD, M.D.

JACKSON, MO.

With sadness and humility your Committee on Necrology respectfully submits for your consideration the information that five worthy physicians within the jurisdiction of this association have died since your last annual meeting in October, 1929.

"The record of a generous life runs like a vine around the memory of our dead and every sweet, unselfish act is now a perfumed flower."

As a basis for your action a brief sketch of each individual follows:

Pinkney Morton Mayfield passed to his reward in his home at Portageville, Mo., January 3, 1930, aged 52. He was born near Millerville, Mo., October 18, 1877. He received his education in the public schools, the Will Mayfield College at Marble Hill, Mo., and the St. Louis College of Physicians and Surgeons, receiving his diploma from that institution in 1903. That same year he located in Portageville, where he practiced medicine for 27 years.

He was a member of the New Madrid County Medical Society and one of its former presidents; a member of the Southeast Missouri Medical Association, the State Medical Association, the Masonic Lodge at Portageville, and a thirty-second degree

\* Read at the Annual Meeting of the Southeast Missouri Medical Association, Poplar Bluff, October 7, 8, 1930.

Mason of the Scottish Rite. He was affiliated with the Unitarian Church.

He was called in the prime of life when it seemed that many more years of service and usefulness should have been vouchsafed to him. He was a faithful physician and a highly esteemed citizen. He manifested a lively interest in community affairs and social welfare in general. He was credited with having responded to every civic duty.

He spent his entire professional life in the lowlands of southeast Missouri ministering to the sick and afflicted, which meant a life of ceaseless toil and hardship especially before the empire of progress brought good roads and concrete highways.

The last illness of this good man was long and full of pain and misery. One is compelled to think what the struggle meant to him; being a physician he was fully conscious of the gravity of his illness and doubtless he dallied from month to month and week to week with the consideration of death. Hope vanished from his mental horizon; and to his soul's dark cottage, battered and decayed by the relentless progress of an incurable malady, was revealed, unkindly, the dark robed Angel waiting in silence to open the door to eternity and release his fettered soul from the pangs of misery and suffering.

The world's a bubble for restless man,  
Whose life, at best, is less than a span;  
Beginning with a wretched conception,  
Attended with nausea and indigestion.

Then a tedious exit from Nature's womb,  
To follow the trail to the silent tomb;  
Passing from the cradle to mature years,  
Beset with radiant hope and worldly fears.

Chasing phantoms and follies of life,  
Till the icy finger of death ends the strife;  
Then back to earth from whence he came,  
And all is over—Who is to blame?

James Robert Lee was born at Pitts Point, Ky., April 2, 1870. He died at Charleston, Mo., February 5, 1930, aged 59. He obtained his preliminary education in the public schools and Pitts Point Academy. He received his medical degree from the medical department of the University of Louisville in 1897, and served one year as intern in the Louisville Hospital. Every second year during his practice he spent a few weeks in postgraduate work in some medical center.

He was a member and a former president of the Mississippi County Medical Society, and a member and former president of the Southeast Missouri Medical Association. He was a member of the State Medical Association, the American Medical Association and the Southern Medical Association.

He served his country during the World War in the United States Medical Reserve Corps as a volunteer, and was assigned to duty first at Camp Taylor and later at El Paso, Texas. He served two years as county health officer of Mississippi County, and rendered most excellent service. He was very active in community affairs although he never aspired to political office.

He was a consistent and faithful member of the Methodist Episcopal Church South and gauged his life in accordance with the code of morals enunciated by the Lowly Nazarene. He enjoyed the confidence and respect of all circles of society. He was a most beloved citizen with a character above reproach with the courtesy and manners of a typical Southern gentleman.

Dr. Lee was a loyal friend to organized medicine and was a regular attendant at the meetings of this association. He did his best to promote the welfare and prosperity of the regular profession. He was blessed with a most affable disposition as those of us who came in contact with him in medical circles can testify. Our association with him socially and professionally inspires pleasant memories. He was remarkably free from the evil jealousies of professional life which commanded for him due respect from his colleagues. The pure dignity of his gentle character evidenced by the spirit of peace and good will toward all mankind was righteously displayed in his daily life and figured supremely in the discharge of every duty and problem confronting him both public and private.

Mournfully do we record the untimely death of this good man who laid down the scepter of human existence in the zenith of his physical strength and usefulness and surrendered to the Grim Reaper for his eternal sleep.

But the night-dew that falls, though in silence it weeps,  
Shall brighten with verdure the grave where he sleeps;  
And the tear that we shed, though in secret it rolls,  
Shall long keep his memory green in our souls.

Roger William Gay was born at Ironton, Mo., June 25, 1872. He died at his home in Ironton, Mo., March 15, 1930, aged 58. His education was secured in the local schools, the St. Charles Military Academy, the State University at Columbia, Mo., and the Beaumont Hospital Medical College at St. Louis, receiving his medical degree in 1892. He was a progressive physician who strove to equip himself better for efficient service to his clientele; therefore he availed himself of frequent postgraduate study in Chicago University and Rush Medical College.

A notable record of his achievement in public service was the building, equipping and operating of the Arcadia Valley Hospital which he managed up to the time of his death. The hospital has a capacity of 30 beds, is nonsectarian, and is a most valuable acquisition to the community. The building is a beautiful piece of architecture and stands as a silent monument to the genius, tireless energy and civic pride of Roger W. Gay.

His course in life was determined and shaped by lofty ideals and unsullied patriotism and loyalty, both to his friends and his country. He served as captain in the Medical Reserve Corps of the United States Army during the World War. His service was such that he received recognition and commendation from the Secretary of War at Washington. He also furnished a beloved son, who served in a medical unit in France during the World War. He was a zealous worker for the Red Cross and contributed his time and means to promote its welfare and success.

He belonged to no church, but supported them all; his check went regularly once a year to every church in his community. By such unselfish generosity it is shown that he loved his fellow men, a cardinal principle of the Christian religion, and his name can be written as one whom the love of God has blessed.

He was an exemplary member of the Masonic fraternity and its fine code of morals and ethics was reflected in his splendid character and righteous living.

He was a member in good standing of the Tri-County Medical Society, the Southeast Missouri Medical Association, the State Medical Association and the American Medical Association.



He served as treasurer of the Southeast Missouri Medical Association.

Roger W. Gay was a true disciple of Aesculapius who trod the turbulent pathway of the country doctor. He breasted the elements of storm and flood to minister to the physical ailments of his fellow men. He carried hope and sympathy to the bedridden and afflicted mortals of his community. He made a good fight against the ravages of disease and death. He upheld the honor and dignity of the medical profession of which he was an honorable and respected member. He was a friend of organized medicine and of every movement that tended to the advancement and betterment of his chosen profession. He mingled with his colleagues in medical associations and contributed his part to the sum total of their success. In our mind's eye is preserved his friendly visage that was so pleasant to greet and so inspiring to his professional brethren.

Dr. Gay was a typical specimen of the rural physician. He was only

A country doctor with a tired face,  
Who came home from the daily race,  
Bringing but little of gold or fame,  
To show how well he played the game.

He was neither rich nor proud,  
Merely one of the surging crowd,  
Toiling, striving from day to day,  
Bravely facing whatever came his way.

He plodded along in his daily strife,  
Facing the quips, deceit and scorns of life,  
But never a whimper of pain or hate  
To the loved ones, who at home await.

William Kennett Statler died June 2, 1930, aged 52, at Oak Ridge, Mo., where he had practiced medicine for nearly 30 years. He was born at Lutesville, Mo., March 28, 1878. The passing of this good man was a distinct loss to the community in which he lived, acted and served.

He obtained his preliminary education in the public schools graduating from the Oak Ridge High School in 1896. He spent two years at the State University at Columbia, Mo., after which he entered Marion-Sims Medical College (now part of the St. Louis University) where he was graduated in 1901.

He was a devoted friend of organized medicine and he affiliated with his colleagues in promoting its success. He was a valued member of the Cape Girardeau County Medical Society, at one time serving as president. He was a member and former president of the Southeast Missouri Medical Association, a member of the State Medical Association and a Fellow of the American Medical Association.

He was a member in good standing in the Order of Ancient Free and Accepted Masons and was Master of the Mystic Tie Lodge at Oak Ridge when he died. He was a member of the Wilson Chapter of Royal Arch Masons at Cape Girardeau and of the Cape Girardeau Commandery of Knights Templar. He was a member of the American Legion by virtue of his loyal service during the World War. He responded to every civic duty faithfully and efficiently.

He was a faithful and consistent member of the Baptist Church of Oak Ridge where he paid his devotions to the Deity and did his part in disseminating the sacred truths of the Christian religion. With all his other pressing duties he found time to serve the Lord with consistent devotion. He was a valiant soldier of the cross who answered the call of the Lord Jesus Christ

early in life and strove to hold the banner of salvation aloft that the souls of his fellow men might be saved. The history of this worthy man's life proves that he entertained the most lofty ideals.

His mild manner and healing sympathy were a balm to many a suffering soul and inspired the disconsolate invalid with fresh hope and a resolution to come back to life and health and throw off the ills that beset him.

Dr. Statler was a true physician who felt the dignity of his profession. He regarded it as a profession and not a trade. He could not resort to any of the methods of the tradesman to get business; he had no thought of commercializing his calling. He felt that he was called upon to relieve human suffering to the best of his ability. It was not his way to inquire about the financial standing of a patient when a call came for assistance; it was to help.

His medical record was supremely creditable and his civic and military records were superb and worthy of commendation. During the bloodiest war known to the annals of history he answered the call of his country and volunteered his services; he left his home and family ties and entered the battlefields of France to minister to the sick and wounded American soldiers who were baring their breasts to the bullets of the enemy and spilling their blood in the defense of our homes and firesides and to make the world safe for democracy. This act alone proves the sublimity of this good man's character.

His righteous life and purity of character shine forth like a blazing star before our mental vision, beckoning us onward and upward toward the higher and nobler accomplishments in life.

Dr. Statler entertained no fear of death. He approached its silent halls calm and serene with an unflinching trust in the wisdom and promises of his Creator, conscious of a life well spent in the service of humanity, his country and the cause of Christianity. He, perhaps, became weary. His passing was a sad incident.

The epitaph of Robert Louis Stevenson seems aptly fitting here:

Under the wide and starry sky,  
Dig the grave and let me lie;  
Glad did I live, and gladly die,  
And I laid me down with a will.

This is the verse you grave for me,  
Here he lies where he longed to be;  
Home is the sailor, home from the sea  
And the hunter home from the hill.

Theodore Frelinghausen Frazer was born near Bowling Green, Ky., March 17, 1844, and died at his home at Commerce, Mo., July 5, 1930, aged 86 years, 3 months and 13 days.

He received his education in public schools and the medical department of the University of Nashville from which institution he was graduated in 1866 at the age of 22. He availed himself of a postgraduate course in Vanderbilt University in 1881.

He served on the board of managers of Hospital No. 4 at Farmington from 1902 to 1906. In 1914 he was again appointed on the board of managers of this institution and served four years. At a later period he served as assistant physician at the same hospital.

He was a member in good standing of the Scott County Medical Society, the State Medical Association, the Southeast Missouri Medical Association and the American Medical Association.

He had practiced medicine in Scott County for sixty years.

He was not only distinguished in medicine and surgery but he was called to responsibilities in civic life. He represented Scott County in the state legislature in 1886 and made a most creditable record. He was elected presiding judge of the Scott County Court in 1910. During his administration on the bench a splendid courthouse building was erected at Benton, the county seat, and now stands as a monument to his faithful service.

He affiliated with the Methodist Episcopal Church South and was a consistent and faithful member. He was a thirty-second degree Mason and served as Master of Ashler Lodge at Commerce for many years.

Dr. Frazer was a most beloved citizen held in high regard by the laity as well as his associates in the divine art of medicine and surgery. The golden rule was his standard and the code of medical ethics governed his conduct with respect to his brethren of the medical profession. He was a typical country doctor of the old school. This statement does not imply inferiority of talent or scientific knowledge for he was an untiring student. His conception of the true physician was to render service. He was a leader among his colleagues and kept himself abreast of the scientific progress of his profession and was specially skilled as a bedside diagnostician.

He maintained the honor and dignity of the medical profession by upright conduct in his daily life and by truth and fidelity in his professional services to his clientele. He seemed to realize fully that service is the best asset one can leave behind.

Now that his fleshly curtain has fallen and his immortal soul passed into a region of happier melodies, his fine record of unselfish service to humanity, his county, his state, and his church stands forth like a beam of light from afar to bless his memory.

A good name is rather to be chosen than great riches,  
And loving favor rather than silver and gold.

#### STUDIES IN INFANT NUTRITION

Jesse R. Gerstley, Chicago (Journal A. M. A., Oct. 25, 1930), states that chemical studies show that: 1. Lactose added to whole boiled cow's milk does not result in diarrhea with a great increase in the excretion of acids when given to normal infants. 2. The amount of various acids excreted by the intestine does not depend directly on the amount of lactose in the diet but on various factors which are probably concerned in its absorption from the intestine. The relation of lactose to protein in the diet is of great importance. 3. In respect to certain chemical relationships in the stool, lactose seems preferable to the maltose-dextrin preparation. Chemical studies, dealing with the development of nutritional disturbance, favor the Finkelstein hypothesis that cow's milk causes a primary injury to the intermediary metabolism. Should intestinal fermentation and diarrhea develop, they are secondary and incidental to the primary disturbance of body nutrition. The severest nutritional disturbance may exist, even alimentary intoxication, without gastrointestinal involvement.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

### CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in Kingston, April 14. This was the first meeting of the Society since the death of Dr. Tinsley Brown who had been secretary for the past eight years. Dr. Emma A. B. Thompson, Breckenridge, was elected secretary to fill the unexpired term of Dr. Brown. Dr. C. H. Wilbur, Polo, was elected delegate to the State Meeting and Dr. G. S. Dowell, Braymer, alternate delegate.

On motion, seconded and carried, Kingston was named as the permanent meeting place. The meetings will be held the second Tuesday of each month at 8:00 p. m.

EMMA A. B. THOMPSON, M.D., Secretary.

### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society held its regular meeting at Liberty, April 30, at 6:00 p. m. Our meetings are real events. Thirty-seven members, their wives and guests sat at the bountiful dinner-table set by Liberty's enterprising "Party Place." Dr. Spence Redman, Platte City, our beloved Councilor of the Twelfth District, was a smiling and very welcome guest. About twenty-eight were in attendance from Excelsior Springs, including Dr. L. H. Webb and other members of the staff of the U. S. Veterans Hospital No. 99.

Dr. W. H. Goodson, Liberty, reported a series of cases of acute poliomyelitis and meningitis, drawing a mental picture of his experiences which was most impressive—will not soon be forgotten. Modern therapy, the spinal puncture, withdrawal of fluid, the introduction of the serum, the saving of the child-life; the triumph of modern skill and methods. A round of applause and full discussion followed the speaker's fine report.

Dr. Earl C. Padgett, Kansas City, occupied the



next hour with "Experiences in Plastic Surgery," using the stereopticon to illustrate probably 200 cases—before and after plastic surgery. All forms of hare-lip, cleft palate and other congenital lesions of the head and face were well shown on the screen. Almost every part of the body had been treated for abnormalities of different kinds amenable to plastic surgery. Many members expressed themselves astounded by the progress made in this branch of medicine and surgery. Of course the doctor was given a rising vote of profound appreciation.

The Woman's Auxiliary held an interesting meeting in the adjoining parlors. Our interest was never better. The writer overheard one of our faithful members remark as we started home: "Well, it's a mystery to me—how any physician that is interested in his profession at all—can ignore and stay away from such a program as this!" But some seem to do it.

J. J. GAINES, M.D., Secretary.

### FIVE-COUNTY MEDICAL SOCIETY

The New Madrid County Medical Society was host to the Five-County Medical Group at New Madrid, April 15. At 6:30 p. m. forty-six physicians, members and guests assembled in the basement of the Methodist Church for a most excellent banquet served by the Ladies Aid of the Church.

Dr. Flint Bondurant, Cairo, Illinois, was a welcome visitor. Drs. Quitman U. Newell and R. J. Crossen, of St. Louis, were our guests through the courtesy of the Postgraduate Committee of the State Association. From Cape Girardeau we had Drs. J. H. Cochran, N. F. Chostner, D. H. Hahn and O. L. Seabaugh. The neighboring town, Jackson, furnished Dr. D. I. L. Seabaugh. From Sikeston came Drs. A. A. Mayfield and G. W. H. Presnell; and from Charleston Drs. W. S. Love and A. H. Marshall who visited us for the first time. It is quite a compliment to have so many distant visitors and speaks well of the programs we are having.

At 7:30 p. m. we adjourned to the courthouse for the scientific meeting. Dr. Wm. N. O'Bannon, Secretary of the New Madrid County Medical Society, presided. A number of those present expressed their good opinion of the past programs of the Group and it was decided that we continue the postgraduate programs once every four months for another year. The Dunklin County Medical Society will be host to the next meeting on June 18 at Malden. In September Stoddard County Medical Society will entertain, in December Pemiscot County Medical Society will be the host and in March, 1932, Butler County Medical Society will entertain. The New Madrid County Society will again be the host in June, 1932, which will end the third year of five-county work.

The resignation of Dr. T. C. Allen, Bernie, as corresponding secretary, was read and regretfully accepted. Our expression of sympathy goes out to Dr. Allen because of his failing health. He has been a faithful member and an untiring worker in the Group. He is missed greatly because of his spicy, peppery sayings which kept the Group in the best of spirits. The success of the past meetings and the large attendance in the past were the result in a large measure to his wonderful "go-getting" methods. We certainly hope his recovery will be accomplished at an early date and that he will soon be active among us again.

Dr. John D. Van Cleve, Malden, was elected corresponding secretary for the next year. On motion, seconded and carried, Dr. Van Cleve was authorized to prepare the programs in cooperation with the

Postgraduate Committee of the State Association and the State Secretary.

The essayists of the evening, Drs. Quitman U. Newell and R. J. Crossen, of St. Louis, seemed to thoroughly enjoy the evening and the Group unquestionably enjoyed their presence and reaped much instructive benefit from their talks.

Dr. Newell's subject, "Gonorrhea in the Female," was handled in an interesting and instructive manner. His ignoring of internal treatment and his pessimistic views on some local antiseptics confirmed our beliefs from experience. The outline of his treatment was concise, broad, and applicable to every practitioner's office work.

Dr. Crossen's paper on "Modern Medical Management of Gynecological Cases" was divided into three subheads, namely, the endocrines, *Trichomonas vaginalis*, and the pessary. He outlined practical methods of determining what hormone is at fault and what substance is to be used in determining the correct dosage. His description of the symptoms of *Trichomonas vaginalis* and its treatment was received with enthusiasm. The pessary which had about lost its medical standing and become antiquated with other relics was reintroduced with many excellent uses by Dr. Crossen. Its place in medicine was welcomed by our general practitioners for most of us feel that it has often been a boon to suffering humanity. We go forth again with confidence in an old appliance.

These two subjects were discussed with eagerness and enthusiasm and this program was considered one of the most practical of our course. Every one felt that the evening was well spent and that it was a very profitable as well as pleasant evening. We hope Drs. Newell and Crossen enjoyed their visit with us and will be as eager to return at some future time as we will be to have them with us again.

It is with considerable concern and alarm that we note Butler County Medical Society had no representation at this meeting. In the past Butler County has been represented by men who have been most earnest and faithful to the cause. It is indeed regrettable that not one of their members was present. We hope it will not happen again.

The representation from the other four counties was as follows: From Dunklin County, Drs. Paul Baldwin, Wheeler Davis, U. A. V. Presnell and T. J. Rigdon, of Kennett; J. D. Van Cleve, Malden. From New Madrid County, Drs. H. T. O'Kelley and A. A. Reeder, of Portageville; W. L. Digges, Wm. N. O'Bannon and J. D. Fakes, of New Madrid; C. H. Pease, Morehouse; C. McRaven, Marston; Drs. J. A. Best, G. W. Husted, B. E. Ellis and E. E. Jones. From Pemiscot County, Drs. J. W. Rhodes, J. W. Johnson and W. R. Limbaugh, of Hayti; C. W. Brown, Campbell; A. R. Conrad, F. L. Ogilvie and J. B. Luten, of Caruthersville; J. R. McDaniel, Steele; Dr. W. F. Pitt. From Stoddard County, Drs. W. C. Dieckman, D. A. Hoxie, Frank LaRue and S. S. Davis, of Dexter; Edward Ford, Bloomfield; W. P. Brandon and W. J. Hux, of Essex.

JOHN D. VAN CLEVE, M.D., Secretary.

### HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the office of the county welfare officer at Clinton, April 15. Members present: Drs. R. J. Smith, Appleton City; J. J. Russell, Deepwater; R. J. Jennings, Windsor; A. E. Derwent, J. R. Hampton, R. S. Hollingsworth, E. C. Peelor, G. S. Walker and S. W. Woltzen, of Clinton. Visitors: Drs. Ruth Seeyers and A. C. Ward, of Osceola; L. L. Smith, Urich; S. B. Hughes and H. W. Insley, of Clinton.

Dr. R. J. Jennings, Windsor, reported an obscure case and asked for suggestions as to the diagnosis.

Dr. R. S. Hollingsworth, Clinton, reported a case of heart block and spoke on the etiology, pathology and treatment of this condition.

These cases were discussed by every one present.

The Society voted to sponsor a tuberculosis clinic on June 10.

Dr. H. W. Insley, Clinton, formerly of Rich Hill, was elected to membership by transfer from the Bates County Medical Society.

S. W. WOLTZEN, M.D., Secretary.

## THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of January 23, 1931

### NEUROLOGY OF THE EMOTIONS.—By DR. L. J. KARNOSH, Cleveland, Ohio.

A fair degree of knowledge exists relative to the peripheral nerves, the spinal cord, the brain stem and the cortex, but there is an undeveloped stretch between the brain stem and the cortex which concerns the all-powerful mechanisms of instinct and emotion. This area represents a primitive sensorium rather than an unconscious mind as advocated by Freud.

Three divisions may be considered in the emotional apparatus of the cord: (1) the primitive sensory cell whose impulses are distributed directly to effectors in the same and in adjacent cord segments giving rise to responses, such as the tendon reflex or the more complicated scratch reflex, and whose impulses do not rise to a level of true consciousness; (2) the second type of sensory apparatus whose impulses are carried by both exteroceptive and interoceptive nerves to a second neuron in the gray matter where they are disseminated to adjacent segments, to the opposite side, and by a single fiber the composite stimulus passes to the crudest suprasegmental sensorium in the hypothalamus. This type concerns noxious stimuli, gives rise to vague disagreeable feelings that defy critical analysis, there is imperfect localization and an emotional type of response. (3) In the third type, impulses pass by synapses to the medulla, neothalamus, and finally to the postrolandic cortex. The sensations are of a gnostic or discriminative rather than vital nature.

At the hypothalamus all visceral stimuli reach their highest level of integration to produce a vegetative feeling tone. Impulsions are characteristically rhythmic. Here is the center of sleep and a vague sensorium for hunger, thirst and sex. There are also circulatory, deglutitory, thermal and sweating centers. This region dictates the threshold of receptivity of the more conscious sensorial levels and represents the center of instincts.

The best known motor mechanism of the hypothalamus is the faciorespiratory bundle which probably arises in the diencephalon and passes down to the facial and respiratory nuclei. An example of disturbances at this point is the unprovoked outburst associated with respiratory arrhythmia and facial distortions in juvenile encephalitis.

When the hypothalamic sensorial apparatus is agitated the patient can state sincerely that he is "nervous all over," but he usually has a tendency to discriminate and refer his troubles to some

part of the body or to some specific experience.

The thalamus is the sensory gateway to the cortex for all exteroceptive stimuli. Vital impulses have no representation as such in the cortex. There is slightly better localization of stimuli in the thalamus than in the hypothalamus, and less of vegetative tone than of protopathic sensations. The motor mechanism for thalamic tone is located chiefly at the basal ganglia, the extrapyramidal system, and approximately 65 per cent of all movements of the human being are of that order. As an example of disorder related thereto is Parkinsonian disease with its loss of the motor phase of feeling tone.

Dual upper motor neurons, one emotional and one volitional, explain phenomena observed in lesions of the facial nerve. Nothnagel's sign in upper motor neuron lesion of the facial nerve, overaction of the mouth on the paralyzed side when the patient is pricked, can be understood on this basis.

The cortex is a sensorium for critical discriminative sensibility, and consciousness is the total of these three sensoria. Thinking is really dictated by feeling. If the factors that determine feeling tone are never clearly defined because they do not reach the cortical level, their motor products shall never fit the logic of the conscious mind. Yet the determination to understand emotional disorders in terms of conscious experiences from memory is the basis of present-day psychoanalytical study and treatment.

The frontal lobe integrates emotions through the frontothalamic and other bundles as the highest level in the reaction of the individual as a whole. Lesions therein cause dissociation between intellect and so-called affectivity.

Emotional disorders, therefore, should be regarded in the same light as organic neural phenomena.

#### DISCUSSION

DR. E. T. GIBSON: Doctor Karnosh's idea of the synthesis of neurologist and psychiatrist is interesting. This idea has been furthered by the epidemic of encephalitis. The attack has been first a subjective one and then organic, by way of the physiology of the nervous system.

DR. G. LEONARD HARRINGTON: The picture just presented is looked upon as being a *part*, albeit an important part, of the total picture of human behavior. A whole made up of interacting parts, an essential one being the outside, organized into a workable configuration is the end of psychiatric practice.

As to psychoanalysis, we know that to tell patients to stop worrying is fruitless. They need to be given an opportunity to relive experiences in a new situation. Experience and learning are synonymous. We learn while experiencing.

DR. B. LANDIS ELLIOTT: A part of the mechanism of emotional expression is the sympathetic nervous system. This is so arranged that organs receive a double innervation from either the middle and inferior division or the middle and superior division of the sympathetic. The functions of the cranial and sacral segments of this apparatus are always opposed to those of the middle division. This provides the mechanism for conflict of emotions as the different emotions are expressed through activity of different portions of the sympathetic system.

DR. G. WILSE ROBINSON, JR.: I do not feel that the psychiatrist is entirely wrong in his approach



to this subject nor that Dr. Karnosh is wrong. We can condition autonomic reactions and can probably condition emotions. We learn to fear by experience. As an example, an infant will fear an object no matter how harmless if a loud noise accompanies its presentation each time.

DR. M. L. PERRY, Topeka: In my school days, the hypothalamic area was an unknown field. I should like to ask the essayist if anatomical connections between the thalamus, hypothalamus and facial nuclei have been demonstrated; also, what is the effect of emotion upon metabolism.

DR. R. L. ISENBERGER: German investigators, through the production of sleep in animals by injections of calcium into the hypothalamus and of irritability by the injection of potassium, have advanced the hypothesis that sleep and the waking state represent the ebb and flow of these two elements into the brain centers beneath the thalamus. I should like to ask Dr. Karnosh his opinion of this possibility. Also, his explanation of the intense anticonvulsant properties of certain barbituric acids irrespective of the localization of the origin of the convulsions.

DR. C. K. SMITH: How would an individual be handled who has organic pathology and a fixed idea that he isn't going to get well?

DR. KARNOSH, closing: I cannot answer the questions of Dr. Smith and Dr. Harrington, but I believe that we should not submit to the pan-American psychosis that "something must be done." Most neuroses have one common denominator,—painful awareness of self. We should know more about organic, somatic and bodily mechanisms before undertaking drastic therapy. The application of psychodynamic therapy is guided largely by intuition.

In answer to Dr. Perry's question, these connections have been demonstrated through experimental stimulations of parts of animals' brains.

In connection with the remarks of Dr. Elliott, it seems that the medulla is essentially parasympathetic and the hypothalamus sympathetic.

Experiments mentioned by Dr. Isenberger were duplicated and similar effects obtained by stimulation without the injection of calcium. Barbiturates have an inhibitory effect upon the postural arc. Veronal produces asynergia. Bromides are neither as effective nor as specific.

#### LIVINGSTON COUNTY MEDICAL SOCIETY

The Livingston County Medical Society met Thursday evening, April 23, at Chillicothe in the office of Drs. Donald M. Dowell and H. S. Dowell. Drs. C. C. Conover and Rex L. Diveley, of Kansas City, were guests through the courtesy of the Postgraduate Committee of the State Association and furnished the scientific program.

Dr. Conover addressed the members on "The Diagnosis and Treatment of Acute Rheumatic Fever" and illustrated his subject with lantern slides. He emphasized the great similarity pathologically between three of our most dreaded diseases, namely, syphilis, tuberculosis and acute rheumatic fever and its kindred entity, chorea. He showed the great similarity of the gumma, tubercle and Aschoff's body and illustrated the accompanying endarteritis of these three diseases and of other infectious diseases.

Dr. Diveley spoke on "The Diagnosis and Treatment of Fractures of the Upper Extremities," and

showed several reels of motion pictures. He stated that we are now living in a "machine age" and that fracture incidence is on the increase and further emphasized the absolute necessity of a thorough knowledge of the anatomy in each fracture and of reaching some standardized method of treatment.

Refreshments were served following the scientific program.

The following members were present: Drs. Donald M. Dowell, H. S. Dowell, H. M. Grace, C. M. Grace, Reuben Barney, R. J. Brennan and J. H. Timberman, of Chillicothe; G. W. Carpenter, Utica. Visitors, Drs. C. C. Conover and Rex L. Diveley, of Kansas City; P. L. Patrick, R. M. Cater and Ola Putman, of Marceline; F. W. Burke, Laclede; Wm. P. Kemp, Hale; E. C. Ambrose and W. A. Fuson, Trenton; F. H. Emmons and A. Collier, of Chillicothe; Dr. Gay and Dr. Joy, a dentist, of Laredo.

DONALD M. DOWELL, M.D., Secretary.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Nodaway County Medical Society was held April 10 in the lecture room of the St. Francis Hospital, Maryville. The president, Dr. K. C. Cummins, Maryville, called the meeting to order at 7:45 p. m., with the following members present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person and W. M. Wallis, Jr., of Maryville; R. B. Bridgeman, Hopkins; Eugene L. Crowson, Pickering; C. J. Garding, Conception Junction; W. M. Hindman, Burlington Junction; C. D. Humbert, Barnard. The guest of the Society was Dr. John G. Hayden, Kansas City, who came as a lecturer through the courtesy of the Postgraduate Committee of the State Association. Other visitors were: Dr. M. L. Holliday, Fillmore; Drs. Earl Braniger, Maryville, and Ed Miller, Hopkins, dentists, and several Sisters from the hospital staff.

The secretary announced that Dr. Arthur J. Cramp, Chicago, Director of the Bureau of Investigation of the American Medical Association, would deliver a lecture at a public meeting to be held in the auditorium of the Northwest Missouri State Teachers College, Maryville, on Wednesday morning, April 22, and urged the attendance of every member in Doctor Cramp's honor.

The secretary read a letter dated March 21 from Col. George A. Skinner, of the Headquarters of the Seventh Corps Area, Omaha, Nebraska, requesting the appointment of a military committee to serve as a means of contact between the Society and the medical department of the U. S. Army in carrying out the Army's objective towards preparedness for national defense. On motion by Dr. C. V. Martin seconded by Dr. R. B. Bridgeman, the president appointed Drs. C. D. Humbert, L. E. Dean and H. S. Rowlett to this committee.

Dr. John G. Hayden, Kansas City, read a well prepared paper on "The Injection Treatment of Varicose Veins." He went into detail concerning the various solutions employed in this treatment and gave his personal experiences with them, mentioning the hazards of the methods and his means of avoiding unhappy results. Numerous questions asked by the members were graciously answered by Dr. Hayden. A clinical demonstration was given of Dr. Hayden's routine of treatment on a patient furnished by the secretary. This feature was greatly appreciated by the audience and much interest was manifested in the speaker's procedures.

The meeting adjourned without form at 10:00 p. m.

MEETING OF APRIL 22

The Society attended the students' assembly at the Northwest Missouri State Teachers College, on Wednesday, April 22, 1931, in the auditorium of the college, the occasion being a public lecture on "Patent Medicines and the Public," presented, under the auspices of the Society, by Dr. Arthur J. Cramp, Chicago, Director of the Bureau of Investigation of the American Medical Association. Members present were: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. P. Fryer, R. C. Person, F. M. Ryan, and W. M. Wallis, Jr., of Maryville; Eugene L. Crowson, Pickering; Charles D. Humbert, Barnard. Dr. W. H. Wiley, Clearmont, Dr. M. L. Holliday, Fillmore, and Dr. R. A. Hawthorne, Braddyville, Iowa, were guests of the Society. Dr. Cramp was presented informally to these physicians before the meeting opened.

The assembly convened at 10:00 a. m. Mr. Uel W. Lamkin, president of the College, read a Scripture lesson from Matthew, Chapter V, and offered a short prayer, and then introduced Dr. K. C. Cummins, Maryville, president of the Society.

Dr. Cummins expressed the pleasure of the Society at the honor and privilege of presenting the lecturer for the morning's program. He told the audience that Dr. Cramp had come to Nodaway County in 1891, from London, and spent some fifteen months on a farm near Bedison, Missouri. He removed to Maryville in December, 1892, and attended the old Seminary which was the predecessor of the college in which his lecture was given. While a student at the Seminary Dr. Cramp was editor of the school's paper, "The Trident." After his graduation in 1894 Dr. Cramp became an instructor in the department of science of Maryville High School, and continued in this position for three years. During this time he furnished the old Maryville *Tribune* with a weekly column of humorous quips and wisecracks under the title of "Oscarisms." Dr. Cummins stated that Dr. Cramp had chosen a Nodaway County girl for his life partner, having married Miss Lillian Caroline Torrey, of Skidmore, on September 1, 1897. Mrs. Cramp's relatives still reside in and near Skidmore. So the occasion was a real homecoming for Dr. Cramp.

Dr. Cramp acknowledged the president's introduction and expressed his thanks for the remembrances of his early life in Nodaway County. He presented his well known lecture on fakes and frauds in the healing art, speaking briefly of the history, organization and work of the Bureau of Investigation of which he is the director. His lecture was illustrated with lantern slides, and gave his audience much merriment and a great deal of wholesome advice. Dr. Cramp easily held his listeners in rapt attention for an hour, and his entertaining discourse received much applause at its conclusion.

CHAS. D. HUMBERT, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The following officers were elected to serve the Pettis County Medical Society during 1931: President, Dr. M. P. Shy, Sedalia; vice president, Dr. A. J. Campbell, Sedalia; secretary, Dr. C. B. Trader, Sedalia; treasurer, Dr. A. E. Monroe, Sedalia; censor, Dr. J. G. Love, Sedalia (term expires, 1933); delegate, Dr. A. E. Monroe, Sedalia, alternate delegate, Dr. J. W. Boger, Sedalia.

C. B. TRADER, M.D., Secretary.

SCOTT COUNTY MEDICAL SOCIETY

The Scott County Medical Society held its regular meeting at Benton, April 9. The following officers were elected to serve during 1931: President, Dr.

G. W. H. Presnell, Sikeston (reelected); secretary, Dr. U. P. Haw, Benton (reelected); censor, Dr. H. T. Blackledge, Commerce (term expires, 1933).

The question of how can we create enthusiasm in our Society was discussed and it was decided to have a special program and a drive for renewal of membership at our next meeting to be held at Sikeston, May 28, at 7:30 p. m. At this meeting we expect to have two competent speakers to address us on "Enterocolitis" and "Diagnosis and Treatment of Tuberculosis in Children."

U. P. HAW, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met April 8 at the home of Dr. W. F. O'Malley, Kirkwood.

Dr. Jerome Diamond, St. Louis, was elected to membership by transfer from the St. Louis Medical Society.

Drs. C. E. Gilliland and A. Victor Reese, of St. Louis, were elected corresponding members.

A military committee was appointed consisting of Drs. R. E. Gaston, Webster Groves, chairman; Otto W. Koch, Clayton, and F. J. Petersen, Richmond Heights. This committee will act as a means of contact between the medical department of the United States Army and the Society regarding medical department reserve corps matters.

The Secretary was instructed to write a letter of thanks and appreciation to Dr. and Mrs. John L. Roemer, of Lindenwood College, St. Charles, for the fine reception given our members on March 18 at the meeting of the Eighth Councilor District.

The Secretary was also instructed to send a letter of sympathy to Dr. J. A. Townsend, Eureka, who is ill.

Dr. Daniel Kauffman, St. Louis, read an interesting and instructive paper on "Arthritis." This subject was freely discussed.

An interesting case report on "Thrombosis of the Mesenteric Vessels" was read by Drs. J. H. Armstrong, Kirkwood, and H. N. Corley, Webster Groves.

F. J. PETERSEN, M.D., Secretary.

WOMAN'S AUXILIARY

SALINE COUNTY AUXILIARY

The Woman's Auxiliary to the Saline County Medical Society met in Marshall, April 30, at the home of Dr. and Mrs. W. M. Bickford.

The following officers were elected for the ensuing year: President, Mrs. L. S. James, Blackburn (reelected); vice president, Mrs. N. K. Pope, Marshall; secretary-treasurer, Mrs. G. S. Hardin, Marshall; corresponding secretary, Mrs. G. A. Aiken, Marshall; delegate, Mrs. Charles Caldwell, Slater.

Preceding the business session a buffet luncheon was given in honor of Dr. and Mrs. Charles Caldwell of Slater who were recently married. Toasts were given by Dr. D. F. Manning, Marshall; Mrs. L. S. James, Blackburn; Mrs. A. E. Gore, Marshall; Dr. G. A. Aiken, Marshall; Mrs. S. P. Simmons, Marshall; Dr. F. A. Howard, Slater, and Mrs. W. M. Bickford, Marshall.

NATIONAL AUXILIARY MEETING

Kansas City, Mo.

To the County Presidents:

The ninth annual meeting of the Woman's Auxiliary to the American Medical Association will be held in Philadelphia, June 8-12. Headquarters, Bellevue-Stratford Hotel. All activities will center in this hotel—registration, meetings, luncheons and



supper dance. All excursions will start from the Broad Street entrance of this hotel.

A wonderful program has been arranged. The convention will open with a buffet luncheon in honor of the ex-presidents of the National Auxiliary. All business sessions will be held in the mornings. With the exception of Monday, all afternoons and evenings will be devoted to pleasure. A variety of excursions have been offered including trips to Valley Forge and to Longwood, the beautiful estate of Mr. and Mrs. Pierre S. du Pont; a boat trip on the Delaware, and visits to the Fairmount and Rodin Museums and to the Historical Society of Pennsylvania. A tour of Wanamaker's, with luncheon in the Crystal Tea Room, or an all-day bus trip to Atlantic City where the New Jersey Auxiliary will entertain at luncheon at the Claridge. An hour in a chair on the Boardwalk and plenty of time for window shopping or a swim.

Remember, Missouri is to be more honored than any other state. We are to have the next National President. Missouri's membership is over 600. We are entitled to seven delegates and seven alternates. We want our full representation at the meeting. If any of your members are planning to attend, please let us know.

It has been thirty years since the American Medical Association met in Philadelphia, and the Philadelphia County Medical Society desiring to mark so auspicious an occasion, and also in appreciation of the work of the Auxiliary, invites all members of the A. M. A. and the visiting women to be their guests at a supper dance in the ball room of the Academy of Music. The President's ball at the Benjamin Franklin Hotel on Thursday evening to which the Auxiliary women are invited will close the formal activities.

With best wishes and most cordial greetings,

Very sincerely yours,

MRS. RALPH W. HOLBROOK,

Corresponding Secretary.

### PSITTACOSIS

The picture presented by the case of psittacosis reported by T. M. Rivers, Bernard Benjamin and G. P. Berry, New York (Journal A. M. A., Aug. 23, 1930), was typical. The onset of the illness and the general appearance of the patient reminded one of a mild attack of yellow fever in which jaundice and bleeding are absent. (Some have likened it to typhoid.) Nevertheless, the important observation on physical examination is a consolidation of the lungs. The chief symptoms were severe and persistent headache, backache, and abdominal discomfort caused by distention. The tongue was covered by a peculiar heavy white coat that endured for more than two weeks. From the chart it is obvious that there was a disproportion between the pulse and the temperature. The most striking feature of the disease was the fact that, in spite of the marked involvement of the left lung, no symptoms referable to the chest occurred. There was no increase in rate of respiration, no pain on breathing, very little cough, and no expectoration except on two occasions. The results of their work in connection with the case reported at this time serve to emphasize the fact that the etiologic agent of psittacosis is neither Nocard's bacillus nor any other ordinary bacterium. Moreover, it appears that the white mouse may serve as a suitable animal for diagnostic purposes. Thus, in many instances, a laboratory diagnosis that ordinarily would be unfeasible will become possible. Finally, it has been shown that the virus of psittacosis is in the sputum of individuals with involvement of the lungs, and this fact should be borne in mind by those who care for these patients.

## TRUTH ABOUT MEDICINES

### NEW AND NONOFFICIAL REMEDIES

WINTHROP VIOSTEROL IN OIL 250 D.—A brand of viosterol in oil 250 D—N. N. R. (New and Non-official Remedies, 1930, p. 410; Jour. A. M. A., October 4, 1930, p. 1021). Winthrop Chemical Co., Inc., New York. (Jour. A. M. A., January 24, 1931, p. 271.)

GAS-GANGRENE ANTITOXIN (Polyvalent) Refined and Concentrated, Without Tetanus Antitoxin.—An anaerobic antitoxin (New and Nonofficial Remedies, 1930, p. 343) prepared by immunizing horses with subcutaneous injections of gradually increasing doses of the toxins of *B. perfringens*, *Vibrio septique*, *B. oedematiens*, *B. sordelli* and *B. histolyticus*. The toxins are individually prepared. The product is marketed in vials containing one minimum therapeutic dose, stated to represent perfringens antitoxin 10,000 units, *Vibrio septique* antitoxin 100 units, *B. oedematiens* antitoxin 200 units, *B. sordelli* antitoxin 200 units, and *B. histolyticus* antitoxin 25 units. Lederle Laboratories, Inc., Pearl River, N. Y.

TABLETS AMYTAL,  $\frac{3}{4}$  grain.—Each tablet contains amytal (Jour. A. M. A., October 18, 1930, p. 1178),  $\frac{3}{4}$  grain. Eli Lilly & Co., Indianapolis.

AMPULES GOLD SODIUM THIOSULPHATE—Abbott, 0.01 Gm.—Each ampule contains gold sodium thiosulphate—Abbott (Jour. A. M. A., December 20, 1930, p. 1913), 0.01 Gm. Abbott Laboratories, North Chicago, Ill.

SULPHARSPHENAMINE—Metz, 0.75 Gm. Ampules.—Each ampule contains sulpharsphenamine—Metz (New and Nonofficial Remedies, 1930, p. 72), 0.75 Gm. H. A. Metz Laboratories, Inc., New York.

SULPHARSPHENAMINE—Metz, 0.9 Gm. Ampules.—Each ampule contains sulpharsphenamine—Metz (New and Nonofficial Remedies, 1930, p. 72), 0.9 Gm. H. A. Metz Laboratories, Inc., New York.

SULPHARSPHENAMINE—Metz, 3.0 Gm. Ampules.—Each ampule contains sulpharsphenamine—Metz (New and Nonofficial Remedies, 1930, p. 72), 3.0 Gm. H. A. Metz Laboratories, Inc., New York. (Jour. A. M. A., January 31, 1931, p. 357.)

### FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

H-O HORNBY'S OATS (Regular H-O Oats) (Hecker H-O Co., Inc., Buffalo, N. Y.). Oat flakes made from lightly toasted, steam-cooked, whole-oat groats. A breakfast cereal. The product contains: moisture, 8 per cent; mineral matter, 2 per cent; fat, 7.3 per cent; protein, 15.2 per cent; crude fiber, 1.3 per cent; carbohydrates, 66.2 per cent. The product contains vitamin B (complex) and E such as are natural to oats. (Jour. A. M. A., January 10, 1931, p. 115.)

### ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following has been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of Accepted Devices for Physical Therapy:

NATIONAL VAPORIZER.—This apparatus is designed for the purpose of vaporizing oil or aqueous solutions and atomizing very fine impalpable powders. The apparatus contains no metal valves or parts that may oxidize or stick together. It is so constructed that it enables almost the entire solution to be vaporized. The apparatus is relatively fragile. National Drug Co., Philadelphia. (Jour. A. M. A., January 24, 1931, p. 271.)

## PROPAGANDA FOR REFORM

AVESAN (H) Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Avesan (H), according to the Avesan Chemical Co., Los Angeles, is "Indicated in tuberculosis, asthma, bronchitis and bronchiectasis" and stated to be "Effective in minor disturbances of the respiratory organs." The product is supplied in ampules and is administered subcutaneously. It is stated to be "a purely chemo-therapeutical product" which is "composed of formic acid, sodium nucleinate, camphor, allyl sulphide and chlorophyl with traces of salicin and sulphuric ether." After considering the available evidence and information, the Council declared Avesan (H) inadmissible to New and Nonofficial Remedies because no acceptable evidence for the efficacy and rationality is presented, because unwarranted claims are made, and because no evidence was supplied to show that the composition and uniformity of the preparation are adequately controlled. (Jour. A. M. A., January 3, 1931, p. 39.)

THERAPEUTIC POTENTIALITIES OF "MUSTARD GAS."—From time to time hopes are still entertained for some possible usefulness in medicine of "mustard gas," chemically known as dichlorethylsulphide. British and German investigators report that the dermal application of dichlorethylsulphide will prevent the development of the experimental cancer of tars. Forster of the Pharmacologic Institute at Würzburg has reported that dichlorethylsulphide in high dilution was the most efficient hair growth promoter of a considerable number of agents tried. Quantitative estimations of hair growth on shaved cats, treated locally with concentrations of 0.01 per cent of the compound in fifty per cent alcohol containing 2 per cent of glycerin, showed a much greater production of hair than with other substances used. Impure yellow petrolatum, but not the pure white product, was next in efficiency to dichlorethylsulphide, this being attributed to impurities acting as irritants. Forster found that when agents are used that cause excoriation a diminution or inhibition of hair growth occurs, and he suggested that this may also occur after injudicious application of dichlorethylsulphide. Lest the results of this research on hair tonics in felines arouse premature hopes in the bald and near bald, it should be mentioned that not all shaved and bald skins responded equally well. Nor are all "war gases" necessarily effective, for the German cats, in Forster's hand, frankly declined to respond to the much vaunted "war gas" of the Allies. (Jour. A. M. A., January 3, 1931, p. 41.)

FIRST AID BY THE MANUFACTURER.—Doctors received during the Christmas season a copy of the pamphlet entitled "First Aid and Emergencies," prepared by McKesson and Robbins for circulation to the public. It is not surprising to find from consultation of this pamphlet that first aid covers a wide variety of conditions and that apparently McKesson and Robbins have developed something for each of these conditions. Thus, anemia is listed among the conditions demanding first aid and the patient is given full instructions for its control. In addition, biliousness and liver trouble, Bright's disease, diabetes, eczema, gout, rheumatism and tuberculosis are among the conditions demanding first aid. True, the book mentions in various places the desirability of calling a physician, but the patient is encouraged to take a chance. This pamphlet represents one of the worst phases of proprietary medicine business. (Jour. A. M. A., January 3, 1931, p. 44.)

## BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 11, No. 2. (Lahey Clinic Number—April, 1931.) 248 pages with 88 illustrations. Philadelphia and London: W. B. Saunders Company. Per clinic year. (February, 1931, to December, 1931) paper, \$12.00; cloth, \$16.00.

The Lahey Clinic number of The Surgical Clinics is well up to the standard of this highly practical and instructive publication. The book contains 248 pages with numerous illustrations. Fifteen physicians contribute to this volume, some of them writing on several subjects.

DIETETICS AND NUTRITION. By Maude A. Perry, B.S., Formerly Director of Dietetics at the Michael Reese Hospital, Chicago, Illinois, and at the Montreal General Hospital, Montreal, Canada. St. Louis: The C. V. Mosby Company. 1930. Price \$2.50.

A short and concise discussion on the purpose and value of dietetics in the maintenance of health is of importance to any one. The relation of various foods to the normal diet and its function in body metabolism are ably explained.

A chapter on the feeding of infants and children up to school age is valuable in that a definite program is not only explained but outlined in a practical manner.

Principles of treatment with diet in diabetes, nephritis, ulcer, anemia, fevers and deficiency diseases are well outlined and practical diets are listed. Diets for obesity and underweight are also given and discussed.

A very good appendix contains lists of food stuffs with their mineral, vitamin and salt content. It also includes a few special recipes for use in anemia and diabetic cases.

As a whole the book gives information and discussions in a compact form which are not only interesting but important and practical. A. C. C.

ABDOMINO-PELVIC DIAGNOSIS IN WOMEN. By Arthur John Walscheid, M.D., Director of Obstetrical and Gynecological Department of Broad Street Hospital, etc. With three hundred ninety-seven illustrations, one color plate. St. Louis: The C. V. Mosby Company. 1931. Price \$12.50.

The author's aim to write a book that is different is successful and in most instances advantageously done. Being limited to diagnosis, space is afforded for discussion of the various methods and the inclusion of case histories necessarily eliminated in more extensive texts. In this book is a wealth of material which is particularly accessible in Section II, given to special gynecology. Less well organized is Section I, dealing with general gynecology, which lacks complete structure and definite skeletal frame work. Much subject material is devoted to "forensic work" but it is interpolated throughout the text instead of being reserved for a separate section or chapter for ready reference. Likewise specific references to an appended bibliography are absent.

Outstanding is a presentation on sterility, tubal gestation, and the whole choice of 397 illustrations although, as stated by the author, it is not a "picture book." As intended, the effort is primarily for graduates and can be used to great advantage in differential diagnosis of unusual cases. R. R. W.



THE PRACTICAL MEDICINE SERIES. Comprising Eight Volumes on the Year's Progress in Medicine and Surgery. General Medicine. Series 1930. Chicago: The Year Book Publishers. Price \$3.00.

This volume on general medicine maintains, possibly even surpasses, the reputation of the Practical Medicine Series for presenting a careful selection of the outstanding advances in medicine during the preceding year. It should be understood that it is possible to review and edit very little material beyond the middle of the current year. The mere recital of the names of the editors is guarantee of the value of the work: Infectious Diseases, by George H. Weaver and T. T. Crooks; Diseases of the Chest, by Lawrason Brown; Diseases of the Blood and Blood-Making Organs, also Diseases of the Kidneys, by George R. Minot and William B. Castle; Diseases of the Heart and Blood Vessels, by William D. Stroud; Diseases of the Digestive System and Metabolism, by Ralph C. Brown.

It is interesting to note that the first articles under infectious diseases deal with psittacosis and with undulant fever; also that arthritis is included under this section.

The introductory paragraphs to practically all the sections entitled "General Considerations" contain valuable anatomical and physiological fundamentals that have been evolved in each subject, expressing partly the views of the editor and consisting partly of pertinent reviews.

This year's volume appears therefore to be unusually important.

W. B.

THE CLINICAL INTERPRETATION OF BLOOD EXAMINATIONS. By Robert A. Kilduffe, A.B., A.M., M.D., F.A.S.C.P., Director, Laboratories Atlantic City Hospital; Consulting Serologist Betty Bacharach Home for Crippled Children, Atlantic City, N. J., etc. Illustrated with 60 engravings. Philadelphia: Lea & Febiger. 1931. Price \$6.50.

The key to the desire of the author is shown in the title of this book. It is his wish to produce a work that will serve as a practical guide to the diagnosis of disease by means of the proper interpretation of laboratory methods applied to the study of the blood.

Every phase of blood examination is included in this work—morphology, serology, chemistry.

Not only are well established tests thoroughly considered but (and this is a very valuable feature) tests of lesser value and worthless tests are discussed. Warning is thus served not to waste time on procedures that have been definitely disproved. For example, seven pages are devoted to the laboratory diagnosis of pregnancy by tests that have "miserably failed." It is too bad that the date of publication just missed the test which has so wonderfully succeeded.

In general, we recommend this book as a well written, concise, conservative and thorough presentation of everything pertaining to the blood.

R. L. T.

THE TREATMENT OF CHRONIC DEAFNESS BY THE ELECTROPHONOIDE METHOD OF ZÜND-BURGNET. By George C. Cathcart, M.A., M.D., Consulting Surgeon to the Throat, Nose and Ear Hospital, Golden Square, etc. Second edition. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1931. Price \$1.50.

In this volume the author endeavors to show the results of treating chronic deafness by the Zünd-

Burgnet electrophonoide. The types of deafness treated include chronic nerve deafness, chronic catarrhal deafness and otosclerosis. He has shown improvement in over 60 per cent of the cases treated and he feels that his results are worth publishing inasmuch as there has been little advance in the treatment of chronic deafness by other means in the last fifty years.

Many otologists will disagree with his statement that adenoids in childhood cause the majority of cases of chronic catarrhal deafness in adults.

He overemphasizes the dangers of adenoid hypertrophy but scores when he says that adenoideotomy is frequently done improperly thus later producing catarrhal deafness that would have been prevented had the proper operation been done. His treatment of acute deafness follows the accepted lines of modern otology.

A brief historical review of reëducative methods for the relief of deafness mentions some remarkable improvements in hearing.

The human voice, he thinks, is the most suitable tone for testing hearing and in treating deafness, using both the whispered and spoken voice but he considers the latter the more valuable.

He believes the electrophonoide of Zünd-Burgnet, which he uses in the treatment of all forms of chronic deafness, will reproduce the sound vibrations of the whole range of the human voice. It contains three mechanical larynxes connected by wiring with a keyboard. By manipulating the keyboard the various tones of the human voice may be produced at will and transmitted to the patient by means of earphones. Numerous instances of different kinds of chronic deafness treated by this method are cited and striking improvements in hearing related.

This method of treatment is not accepted or used by leading otologists of this country and one gains the impression from the text that it is accepted by very few otologists in the author's own country.

The book makes fairly interesting reading, but until the treatment he advocates is more widely used and the experience of other otologists noted, it cannot be regarded as a valuable work of reference.

O. S. G.

OPERATIVE GYNECOLOGY. By Harry Sturgeon Crossen, M.D., F.A.C.S., Professor of Clinical Gynecology, Washington University School of Medicine, and Gynecologist in Chief to the Barnes Hospital and the Washington University Dispensary, etc., and Robert James Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine, etc. Fourth edition. Twelve hundred forty-six illustrations and two color plates. St. Louis: The C. V. Mosby Company. 1930. Price \$15.00.

The author is to be congratulated for producing the best book on operative gynecology to date. The description of each operation is clear, concise and easy to follow. The illustrations are exceptionally good. Chapters XVI and XVII are especially good. The genito-urinary tract and the intestinal tract operations are worth reading several times. There is not a superfluous chapter in this book; each one needs to be there.

This book will be eagerly read by the obstetrician, gynecologist, general surgeon and general practitioner alike. The C. V. Mosby Company is to be congratulated for the style of type, the illustrations and the artistic make-up.

A. J. W.

# THE JOURNAL

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### RAPID CHANGES IN THIRTY YEARS\*

PRESIDENT'S ADDRESS

WENZEL C. GAYLER, M.D.

ST. LOUIS

Four times during the history of the human family we have had periods of intense, energetic activity, accompanied by great accomplishments: the early Greek period, which lasted less than a hundred years, the Roman period, the period of the Renaissance, and the period in which we now live. These four peculiar reactions occurred under different climatic and racial influences, but they all had one phase in common, i. e., the men of these periods distrusted all knowledge, beliefs, and precedents excepting those which could be clearly demonstrated and proved. During the life of Semmelweis certain theories and facts were accepted because the head of the department of obstetrics believed in them. The individual physician had no right to an opinion and must accept the opinion of the great man, no matter how absurd it seemed to the physician. Today, if a freshman in medical school thinks he has just reason to question the teachings of the professor or of the printed book he is encouraged to come forward and express himself. This is a healthy attitude.

The last thirty years have brought to the physician immense and radical changes. Everything with which he comes in contact has profoundly changed and is still in a rapidly changing condition. Many hospitals of the early years of the century had been designed for other purposes. Some were old residences with the high ceilings of the time. Most hospitals had wooden floors that could not be kept clean. Surgical cleanliness of the field of operation was poorly understood and sterile gloves were being used by a few careful men but had not been generally accepted. Urine was being examined for albumin, sugar, specific gravity, and casts. Widal tests were be-

ing made and plasmodia were being recognized; Wassermann tests were not yet in vogue and the complicated blood chemistry tests of today were unknown. Postmortem examinations were occasionally made and tubercle bacilli were being stained and recognized in the sputum. Microscopic diagnosis of malignancy by cut section was not the reliable and accurate procedure that we have today and the profession had little confidence in it. The most complicated procedure of the time was the staining of the various kinds of white corpuscles of the blood and the speculation as to their meaning.

The nurses were as hard working and honest as they are today, but they had no opportunity to do good work. The prenursing educational requirements of today did not exist; almost nothing was known of asepsis or bacteriology and charts and records were crude and simple. It seems strange to contemplate a time when there were ten physicians to every graduate nurse in the United States, especially as there will soon be ten nurses to every physician if our present-day system of training schools continues in operation. If this statement seems exaggerated, I advise you to read "Nurses, Patients, and Pocketbooks," by Mrs. Burgess. Although an immense number of so-called medical schools were in operation the entrance requirements of today were unknown and the full time professor was a rarity. The teachers of all departments were general practitioners who occasionally took a little time to deliver a lecture. The present-day Class A school with its equipment and large endowment had not come into being. The physician himself was not always an educated man, as he is today. It was not an unusual thing for a motorman to tire of his job and within two years become a practitioner of medicine.

A good example of modern medical progress may be found in St. Louis, now one of the large medical centers of the world. Our two medical schools and our hospitals compare favorably with schools and hospitals anywhere.

\* Delivered before the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



It has been the theory that no city is large enough to have two medical schools and no European city has, to my knowledge, ever made the attempt. They are here, however, and seem to be doing well and both are maintaining superlatively high standards. Thirty years ago St. Louis was, medically speaking, a frontier town.

At that time the St. Louis Female Hospital had just passed through an epidemic of puerperal fever in which many lives had been uselessly lost. This was almost fifty years after Semmelweis had had a similar experience in the Allgemeine Krankenhaus at Vienna and, therefore, fifty years after the world knew how to prevent epidemics of puerperal sepsis. The obstetrician of the time labored under tremendous difficulties. All types of puerperal infection were common, particularly in hospitals. Only the destitute went to the hospitals as it was generally known that fever was less common at home. Mountains of literature on the subject of puerperal sepsis written at the time can still be seen in our libraries. Much of this seems absurd to us now but it emphasizes the fact that a very desperate situation existed.

Today puerperal fever has disappeared from hospital practice and the occasional case seen in consultation usually comes from a dirty home. Not one case of puerperal fever has ever developed in the new Deaconess Hospital in St. Louis, despite the fact that during the last year St. Louis County had no hospital for charity patients and all the neglected patients, most of them from very poor homes, were sent to the Deaconess Hospital for delivery. The complete absence of puerperal infection among these patients is truly remarkable. At the St. Anthony's Hospital in St. Louis there were no puerperal infections among the first thousand obstetrical patients.

Thirty years ago the anatomy of the pelvic organs, both hard and soft, was understood fairly well. We were approaching the end of the period during which both ovaries were removed for the cure of backache, dysmenorrhea and hysteria. It was beginning to be suspected that something about this procedure was wrong and that a mysterious but terrible injury was being done to these women. It was supposed that ovulation and menstruation were in some way interrelated but the physiology of the pelvic organs as understood today was a closed book. Nothing was known of endocrines, hormones, pituitrin, Kielland forceps, or mercurochrome.

The period ending about 1915 could be called the lysol period, as lysol was almost a fetish and it was considered impossible to practice obstetrics without it. Then followed the pitui-

trin period, which is still with us but which is rapidly becoming rationalized. The corpus luteum fad is also fortunately drawing to a close. We now seem to be entering a rational period during which a better understanding of the physiology of the pelvic organs is the basis of our treatment.

Potter has had a peculiar influence on obstetrics in America. He has repopularized the podalic version and has rather overdone it. His influence, however, has not been entirely bad. Too many cesarean sections are being done, especially by the general surgeon. The results, however, are surprisingly good so this movement must be considered a safer one than the Potter version movement.

The application of anesthesia to obstetrics is undergoing a rapidly transitional process. The various kinds of hypodermic general anesthetics are strictly in the experimental stage. Local anesthesia of the cervix and external genitalia as well as spinal anesthesia are questionable procedures when applied to obstetrics. The great majority of women are receiving nitrous oxide during the dilating stage and ether during the actual delivery. This method is far from perfect but in our present-day ignorance it is probably the best we can do. The induction of labor with large doses of castor oil and small doses of pituitrin is successful. The dilating bag is still being used but quinine is considered a dangerous drug when the fetus is alive. Its field is probably limited to the incomplete abortion and miscarriage, or to cases in which the fetus at term is known to be dead.

Our present-day knowledge is in a peculiar condition. The female sex hormone has been isolated and its potency demonstrated by Allen and Doisy and others. Estrus is being produced in the castrated mouse by the injection of this hormone. The role of the anterior pituitary as the motor of the ovary has been demonstrated by Aschheim and Zondek. Estrus is also promptly produced in immature mice and rats by the injection of anterior pituitary extract.

It has been common knowledge for a long time that thyroid substance fed to certain well selected patients produced almost miraculous changes. This fact very naturally made a profound impression on all of us and caused us to believe that we were on the verge of other discoveries of a similar nature in the endocrine world. We were particularly hopeful that some kind of an ovarian extract might be found that would help us in the nonoperative practice of gynecology. Our failure with all the ovarian products as yet isolated has been complete and most humiliating as they all seem inert when uncombined with other substances.

When combined with thyroid they seem to have some potency, which leads us to hope that the role of the thyroid in the menstrual cycle will some day be better understood. Protein therapy has proved its usefulness and has recently prevented much surgery.

The Kielland forceps are being used by some physicians when labor has come to a standstill and the head is in the transverse position. The ease with which this device performs the turning movement is astonishing. This, however, is the only purpose that it serves. It seems to be a great improvement on version and on the attempts to turn the head with the fingers or with the ordinary forceps with the pelvic curve. These results can only be expected in the practice of those well experienced in the use of this instrument.

In spite of these changes which have almost entirely been improvements, the profession is to be congratulated upon the fact that we realize that perfection has not yet been obtained. We seem just to have scratched the surface and the next thirty years will probably witness developments as astounding as those of the last three decades.

#### NURSES

The nurse of today is a poor overworked, underpaid individual, who is the victim of misrepresentation and false promises and is being exploited as man has always exploited woman. A few hospitals rigidly insist upon high prenursing education and give a very good schooling during the three years of training. Others still depend upon a large number of student nurses to do the drudgery of the hospitals and would be embarrassed if this work were properly paid for as is done in other industries. The result of this system is that the nursing profession is becoming overcrowded. It is probably more overcrowded than any other group in our modern life, excepting unskilled labor.

The young woman who wants to be a nurse should be exceedingly careful in the choice of her training school. As soon as she graduates she had better attempt to get an executive position in a hospital. Failing this she had better abandon nursing, as an attempt to make a living doing private nursing is a heart-breaking experience.

#### DRUGGISTS

The poor unfortunate druggist is no longer the respected and honored ally of the physician. He maintains a miniature department store and works fifteen or sixteen hours out of the twenty-four. He no longer manufactures his own medicine, and his economic condition is bad. He is a charming, sociable in-

dividual whose plight resembles that of the manufacturer of hair pins when bobbed hair suddenly became the style.

#### HOSPITALS

The modern hospital is a palace with wide marble halls, electric elevators which are electrically heated, and marvelous lighting arrangements, particularly in the operating and delivery rooms. The roentgen ray and diagnostic equipment and the apparatus for sterilizing instruments and linen are in keeping with the modern advance in scientific knowledge. Possibly the modern method of keeping records and charts marks one of our greatest advances. At a moment's notice we can now find a chart of a former patient with minute information that is of incalculable value. Unfortunately, the modern hospital has a very large debt and is compelled to charge high prices. This works a hardship on many patients and physicians.

#### MEDICAL SCHOOLS

The modern medical school has been so liberally supplied with money that it seems to lack nothing. It has beautiful buildings, laboratories, hospitals and equipment that would mystify the teacher of thirty years ago if he could see them today. Probably the most outstanding feature of the medical school of today is the rapidity with which changes are made. New discoveries call for new equipment and new teaching plans. Nothing is sacred.

It is admitted by all that we have not enough medical schools in America today and that four out of five properly equipped applicants are being refused admission to the freshman classes throughout the country each year. This brings to the school the accusation that they are not facing the main problem, which is, to supply the American people with well trained physicians in sufficient numbers. The resulting shortage of physicians already presents a serious problem in many parts of the states. Another result of this situation is that osteopaths and chiropractors are using our textbooks and attending our clinics, and some of them have acquired a fair technic in modern surgery, medicine, and the specialties. This is particularly to be deplored because they have had no premedical training nor have they had the preclinical training in medicine.

#### MEDICAL LIBRARY

One of the greatest of modern helps to the physician is the medical library. It is the accumulation of knowledge acquired throughout the ages, indexed and arranged in easily accessible form and is of incalculable value to the teacher, student and practitioner.



## PHYSICIANS

The physician of today is a scholarly gentleman with many letters after his name, whose average age at the end of his internship is twenty-eight. He believes only what can be proved. The opinions of a man who has had thirty years of experience mean nothing to him unless these opinions can be backed up by demonstrations. "The doc" is rapidly disappearing and the doctor is taking his place.

The general practitioner was the big man in medicine thirty years ago. Today he is in an unfortunate position for many reasons. (1) He is the only doctor who has little leisure and therefore finds it hard to keep abreast of modern medical literature. Even if he had the time, his work covers all branches of medicine and no man can have an intimate understanding of all branches of modern medicine. (2) His economic plight is even worse. If he is conscientious he sends a large number of his patients to specialists and calls for consultations for a large percentage of the remaining patients. This makes of him a receiving clerk who is continually distributing patients to the various specialists.

This condition will probably correct itself. The graduate of today is equipped for practice in a manner undreamed of thirty years ago. He will be somewhat of a specialist even if he attempts to go into general practice. He will have "leanings" toward a certain specialty, will maintain his knowledge of literature on this specialty, will treat all of the patients who come under that classification and will even receive referred patients in that specialty from neighboring doctors, as he grows older. The general practitioner is probably doomed even in remote districts. This is particularly true of the next generation who will build so many roads that there will be no remote districts.

The future looks very bright for the medical man. The man with a poor medical and premedical education will soon be gone. In his place we will have a man with a premedical degree and an immensely superior medical education. The public will be quick to grasp the fact that medical men have become superior people. Conditions of practice will improve as the physician's standing in the community improves; but that is not all.

There are many questions before the American people today being debated by lawyers, preachers, social service workers and legislators that can only be properly understood by the practicing physician. The question of tuberculosis, syphilis, alcohol, poverty, prostitution, and the slums of the big cities that result from these causes, can only be understood by a phy-

sician and future generations will probably recognize the fact.

605 Wall Building.

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WHAT SHOULD ONE EXPECT OF  
HIS PHYSICIAN AND SURGEON?#1

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More progress in the development of medicine has been made in the past half century than in almost all the time prior to it. This is due largely to two outstanding contributions made shortly before this time, viz., the discovery of anesthesia by Crawford W. Long, in 1842, and the introduction of antiseptics by Lister, in 1865. Obviously prior to the use of asepsis and anesthesia surgery was greatly limited because of the attendant pain and high mortality. Within the past fifty years roentgen ray and radium have been discovered. The causes of tuberculosis and diphtheria have been isolated. The condition of appendicitis has become recognized. The use of rubber gloves has been introduced. Within the past ten years the terrors of diabetes have been greatly lessened by the discovery of insulin, and the treat-

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ment of that previously hopeless condition, pernicious anemia, has been greatly improved by the use of liver diet. These discoveries have been the result of intensive researches. Concomitant with these advances, the character of work done by physicians today has been improved due to the constant and persistent efforts of the American and state medical associations and other agencies of organized medicine.

Upon completion of his medical education, the physician of today is well trained and well qualified because of the intensive and thorough training which he has received both in medical school and in hospitals during his intern years. A minimum of six years of schooling has been required of him. The majority of physicians, however, have had from seven to ten years' study subsequent to graduation from high school. In spite of this extensive and intensive training, physicians graduating from Class A medical schools have definite limitations, particularly as regards certain special fields in medicine. There is no attempt made on the part of medical schools today to graduate physicians trained as specialists. On the contrary, practically all leading medical schools consider it their obligation to educate medical students to be general practitioners. This means instruction in the fundamental sciences of medicine and particularly in the diagnosis of disease and the treatment of those cases which do not require special training and experience. Obviously, the physician just graduated does not possess that which the older practitioners have acquired, viz., judgment and experience.

The "1931 model" physician graduating from a Class A medical school in June, 1931, possesses or is familiar with a great deal of the medical knowledge which is known at that time. However, advances are being made in medicine continually as evidenced by the above mentioned monumental progress which has been made in the last half century, and the "1931 model" physician will become as obsolete as the "1931 model" automobile unless as new improvements are developed these are used to replace the old. Graduation from school is spoken of as commencement, indicating that one is merely starting on his life's career. This is probably truer in medicine than in any other profession or type of work, because the physician is not only commencing his life's work, but is in reality commencing the study of medicine.

Due to the increasing advances which have been made in the science of medicine, it has become impossible that any one can master all the various individual branches. It, therefore, has become necessary that certain physicians

limit their efforts to particular phases of medicine and thus become more proficient than the average physician in the diagnosis and treatment of diseases falling within this special field. Unfortunately, however, specialization has become too prevalent and there are many so-called "specialists" today whose opinion is much less valuable than that of the family physician. This is due in part to the fact that these "pseudospecialists" have had such insufficient fundamental and general training that they may consider a symptom referable to their specialty as the disease itself, wholly ignorant of the fact that it may be merely a sign produced by an abnormal process elsewhere in the body. Due to their lack of general training they are unable to consider the patient as a whole and thus are incapable of evaluating symptoms and signs referable to other parts of the body; e. g., treatment of the eyes will not benefit failing vision caused by kidney disease. A specialist of this type, as stated by Dr. William J. Mayo, is "one who knows more and more about less and less."

Proper specialization in medicine is, however, desirable and essential, and without it modern medicine could not progress. It is imperative, nevertheless, that it not be overdone, in which case it will become necessary for a patient to consult a group of physicians each of whom treats a single component, thus being comparable to the highly specialized mechanics in a modern automobile factory each of whom adjusts one particular unit. Whereas this procedure may be desirable and profitable in the case of an automobile, it is certainly not so with the finest constructed piece of machinery, the human body.

It is essential and desirable that every one should have a family physician whom he may consult in all illnesses, through whom he may receive protection against disease, and who may suggest the need of the services of a specialist when necessary. The family physician who is trained in the fundamentals of general medicine and is able to diagnose all the commoner conditions is an institution which must be maintained. He is also able to treat successfully by far the majority of ills to which the human body is subject. Relatively infrequently will it become necessary for him to secure additional aid from one who is especially trained along certain lines. When such additional services become necessary, it is desirable that the family physician and not the patient should determine it, as he should subsequently correlate the findings. Nothing is more pernicious than the indiscriminate and promiscuous consultation with specialists by the patient himself.



Even though the relation of the family physician and that of the specialist to the patient is considerably different each has a certain obligation to the patient which is an important responsibility. This obligation consists of progressing with modern medicine. The "1931 model" specialist will become as obsolete without frequent "remodeling" as will the "1931 model" physician. Therefore, the family physician and the specialist owe it to their patients to continue intensive studying subsequent to the completion of their preparatory training in order that the newer advances in medicine might be familiar to and utilized by them. This may be accomplished in any of three different ways: (1) By subscribing to and diligently reading current medical periodicals in which the newer advances of medicine are published; (2) by attending medical society meetings in order to become acquainted with and to profit by the experience of their colleagues; (3) by the visiting of clinics and educational institutions in order that the methods practiced there might be studied and learned.

In addition to the above common obligation, the family physician and the specialist have different obligations to their patients. The family physician, as mentioned above, is obligated to be sufficiently well trained to recognize and treat the majority of ailments to which the body is subject and to refer the patient to one who is particularly trained in a special field when such services become necessary. He must be thoroughly cognizant with all branches of medicine, which, because of its broad scope, limits him in his knowledge of any one of them.

The specialist, on the other hand, is one who should have a general training in medicine before attempting specialization. After the general training a number of years, at least three to five, should be spent in the particular specialty which has been chosen. Without such general and additional special training it may be said that one is not capable of becoming a specialist. Unfortunately, in the United States today there is no way to prohibit an insufficiently trained individual from posing as a specialist, which condition is responsible for the large number of "pseudospecialists." In addition to the general knowledge of medicine which the specialist should have, which obviously may not be as great as that of the family physician, he should be completely familiar with his own specialty and should be prepared and equipped to render expert advice to the patient or physician consulting him. As an example, surgery at the present time may be performed by individuals incompletely trained and incapable of performing surgical procedures.

Surgical technic, although extremely important, is by far the easiest part of surgery to master. However, surgical diagnosis and surgical judgment are much more difficult and more important to obtain. These may be acquired either by serving an apprenticeship under an experienced surgeon or by the costly trial and error method in which one learns by his mistakes. In considering physicians who operate it is essential to differentiate between two types: (1) the "operator" who has little conception of the science of surgery and (2) the true surgeon who is not only able to perform the technical part of an operator, but who also possesses that rare quality, surgical judgment, which will determine what and when a particular operative procedure should be performed. It is not only interesting but also appalling that the mortality rate from appendicitis, in spite of the very definite advances that have been made in recent years concerning this particular affection, has increased within the past ten years. Willis found from an analysis of vital statistics that the mortality rate in appendicitis rose 31 per cent from 1905 to 1922. In the same period of time the mortality rate from gastro-intestinal ulcer increased 72 per cent and that from thyroid disease increased 250 per cent. Willis, Elias, and Ferguson believe that this increase in mortality is due largely to the inexperience and incompetency of a large number of operators. Not only is the mortality increased as a result of incompletely and insufficiently trained operators but the morbidity is also increased, which is equally important. Many patients suffer more, or at least as much, following an operative procedure as they did before. The specialist, therefore, of which the surgeon is merely an example, owes certain very definite obligations to the patient, which duties obviously he cannot discharge if he himself is not sufficiently trained.

It is evident that the choice of one's physician becomes of utmost importance. The selection of a physician who will meet the above requirements may be difficult, especially if one is in a strange community. The suggestion is made that if one is unacquainted in a community reliable information concerning the choice of physicians may be obtained from the leading hospitals. Whereas not all the men affiliated with many of the leading hospitals may be able to discharge their obligations to the patient, the hospital is certainly in a position to advise an individual concerning the type of physician he should consult.

It is possible that a patient may assist his physician in discharging his obligation to the community and the patient himself. Too fre-

quently patients object to and complain of a physician's absence while attending medical meetings or taking postgraduate studies. One should realize that the additional knowledge gained by the physician as a result of this study will equip him so that he will be better fitted to serve and discharge his obligations to his patients than he would have been had he remained at home. Even though at times it may seem difficult and hard hearted that your physician should leave during a particular illness, you should consider that as a result of his absence he will be in a better position to serve not only you but all mankind.

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### A NEW CONCEPTION OF THYROID FUNCTION AND THE INTERRELATION OF THE THYROTOMIC APPARATUS\*

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While looking over the important contributions to our knowledge of goiter I was deeply impressed with the work of Williamson and Pearse<sup>1</sup> on the thyroid apparatus. They have continued their work on this subject since their original paper was published in 1923 and it constitutes a most exhaustive study of the thyroid gland in health and disease. From assembled facts and deductions they have developed a new idea. Their conception of thyroid function unquestionably contains some revolutionary ideas but these ideas seem well founded and are reinforced with experimental evidence to support their beliefs. Many of the facts interpreted by them were developed through the research of others and as such have been used in the development of their own new theories after they had made proper verification of the work of others as originally published. Credit is given by them to Norris, Matsunaga, Hurthle, Berry, McCarrison, Gley, Jackson, Mellanby, Marine, Plummer, Wilson, Langhans, Aschoff, and a host of others for contributions to earlier theories or basic facts. But the creation and assembling of a definite physiological cycle through which the thyroid seems to travel in its function, as here reviewed, are original with Williamson and Pearse.

It is surprising that so few physicians are

familiar with the work of these two investigators which, although it may not have entirely solved the problem of the *modus operandi* of thyroid function, is nevertheless a fascinating and stimulating study. Their theory seems to develop plenty of situations through the course of its cycle that will make interesting discussions and because of this will prove extremely valuable. Their conception of thyroid function was not predetermined but seems to have developed step by step as the facts presented themselves.

Williamson and Pearse were studying the interrelationship of purine-creatin and amino-acid nitrogen as it occurred during protein metabolism in intestinal diseases in children. They noted that under these conditions an excess of lymphocytes occurred in practically all the lymphoidal tissues in the body. Because Paton intimated that lymphocytes were carriers of nitrogen and because Jackson showed the importance of the thyroid gland in protein metabolism, they believed that a combination of these ideas might lead to some valuable knowledge. They assumed that the lymphocytes were probably carriers of trophic or plastic nitrogen to be used for protein synthesis. They originally had no idea of considering the thyroid gland or its function, but the desire for first-hand information on this subject made such a study necessary.

They first studied some sections from the exophthalmic goiter and as usual found that invariably the high, swollen columnar cells seen in papillary formation completely filled the follicles which, in turn, were almost devoid of colloid. They also noticed that collections of lymphocytes were found in nearly all cases, either in the connective tissue of the goiter or scattered through the gland substance. They promptly concluded that they must know more of the normal thyroid gland before they could determine the nature of these pathological changes. After a study of 800 normal glands they became impressed with the observation that certain definite changes were consistently found in the parenchyma of the glands.

The possibility came to mind that these changes as seen in certain areas might not all be pathological but might represent normal physiological areas of thyroid function. This idea was strengthened when it was later learned that many of the thyroid glands showing such changes had been removed from people who had died accidentally while apparently in the best of health. It was further thought that the areas found and believed to be physiological showed changes similar to those that had been regarded as hypertrophy and hyperplasia by other writers, and therefore pathological. Here

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1. A review of the work of Williamson and Pearse.



was a new idea although in crude form. It had to be worked out.

The thyroid gland normally weighs from 25 to 30 grams, or about 3 to 3.5 grams per kilogram of body weight. (Marine.) It has two lateral lobes which grow toward the median line and fuse in such a way that they form an isthmus. From the isthmus a process passes upward along the remnant of the thyroglossal duct toward the thyroid cartilage to form the pyramidal lobe.

The thyroid gland rests against the trachea and the esophagus in a cup-shaped depression in the deep cervical fascia and is separated from the mediastinum by a fibrous diaphragm. Both lobes and the isthmus are enveloped in a very thin fibro-elastic tissue. The gland is fixed to the trachea by means of fibrous tissue strands that lie under the isthmus and the pyramidal process, hugging the lateral surfaces of the trachea and forming the hilum of the gland. This same fibrous tissue anchors the thyroid firmly to the hilum by dipping into the gland substance to form the posterior median surface of the trachea upward to the cricoid and thyroid cartilages, forming Berry's ligament. They carry some fibers of the recurrent laryngeal nerve. This attachment allows the gland to move upward on contraction of the muscles of deglutition. When fixation of these structures occurs, as in severe cases of inflammation and malignancy, free mobility is markedly limited.

The gland is supplied with blood mainly by the superior and inferior thyroid arteries and their communicating branches. These vessels divide into branches that penetrate the gland substance, each having a different distribution as well as a different purpose.

The superior thyroid artery enters at the upper pole while the inferior thyroid gains access to the gland at the lower pole. The return superior and inferior venous supply takes origin from the plexus of veins on the surface of each lobe and is reinforced by gaining an additional and important middle thyroid vein. The superior and middle thyroid veins empty into the internal jugular while the inferior thyroid vessels join the innominate veins.

The superior thyroid artery supplies the interstitial substance from the gland surface and often may not reach the parenchyma at all. This has been observed after the injection of the vessel with some colored substance which allows the material to stain tissues traversed from the interstitial tissues directly to the plexus of the veins on the surface of the thyroid. The superior thyroid seems to function in the connective tissue as a "shunt system" for emergency use. Each inferior thyroid artery,

on the other hand, supplies and nourishes the gland units in the parenchyma.

Until Rienhoff succeeded in injecting the lymphatic vessels of the thyroid our knowledge of this phase was not definite. Williamson and Pearce worked out two different systems that carried lymph from the thyroid. One is the intrathyroidal the other the extrathyroidal lymph system.

The intrathyroidal lymph system begins in the lymph sinusoid in the small perivascular intralobular lymphatics that accompany the blood vessels. These lymph capillaries communicate with the intralobular lymph spaces. There is also communication with the interlobular lymph channels in the connective tissue and small communicating lymph capillaries, "the lymphae comites," further establish contact with the surface of the lobes of the thyroid. The lymph vessels are drained toward the hilum of the lobe and thence to the cervical lymphatic chains of lymph glands.

It is believed that at a comparatively early stage in the embryological development of the thyroid gland its mass substance becomes broken up and a number of small spaces may be seen. These spaces soon form a collection of units within the gland substance which subsequently grow toward the periphery and fuse. Soon fluid appears and at this time seems to separate the gland proper from its previously existing fibroblastic tissue covering. With the completion of these spaces and the appearance of lymph within them Williamson and Pearce believe that the earliest functioning of the intrathyroidal lymphatic system has been observed.

The extrathyroidal lymph system begins at the lower pole of the thyroid near the hilum and follows the thyrothymic stalk along the trachea down to the thymus gland in the mediastinum. One can follow this in certain cases where small pseudocysts of the lymph vessels are seen at operation as steel-gray endothelial-lined collections of fluid lymph. This system is a closed one and has no connection with the cervical lymphatic system.

The practical importance of this lower or extrathyroidal lymph system is in its action as a carrier of lymphocytes and thyroid secretion to the parathyroid and thymic tissue. In 13 cases of cancer of the interstitial tissue or sinusoids near the lower pole of the thyroid, 9 of them spread directly down this lymph vascular route to the thymus and mediastinum.

The lobes of the thyroid gland are subdivided into lobules by the dipping of loose fibrous connective tissue into the gland substance. These lobules are further broken into smaller areas known as gland units.

The colloid follicle has been and still is regarded by most investigators as the thyroid gland unit. However, for manifestly good reasons, it is believed by Williamson and Pearse that the follicle is too simple and inadequate to be the thyroid gland unit and they have attempted to show that the gland unit is a lymph sinusoid. This idea is in conformity with the internal mechanism of other parenchymatous tissues, such as the liver and kidney.

They believe these gland units are anatomical entities which physiologically seem to function rather definitely. Each thyroid lymph sinusoid has a fibro-elastic capsule encircling it and this capsule has an inner lining layer of flattened endothelium. At one or more places, sets of intralobular vessels, both afferent and efferent, pierce the capsule and enter the gland unit. These blood vessels are accompanied by many perivascular lymph capillaries. Where the lymph vessels pierce the capsule their endothelium becomes continuous with the endothelial lining of the lymph sinusoid, thus creating a serous sac. Inside this sac is found a lymph-like fluid separating the capsule from the contents of the gland unit, which consists of epithelium arranged in long, cylindrical, solid columns having their accompanying lymph and blood capillaries; in addition, some reticulo-endothelial cells are present.

In earlier life these columns of epithelium are long and straight, having a solid central core of protoplasm and are bathed in the sinusoidal lymph fluid which separates them from each other. As growth continues these solid tubular structures elongate and must soon accommodate themselves to their allotted space within the gland unit. This requires much twisting and turning.

The epithelial columns are supported within this lymph sinusoid by the intralobular vessels which, having penetrated the capsule of the gland unit, go to the columns of the epithelium, divide and send longitudinal blood vessels throughout their length. These are reinforced at regular intervals by lateral connecting vessels which join them as the "rungs in a ladder." The blood vessels are composed of endothelium and a slight amount of adventitia. They have no muscular coats and artery and vein at this time are indistinguishable from each other. The protoplasm of the solid core of each column has microcapillaries which establish communication with the protoplasm of the periphery of the column.

The protoplasm of the cells that constitute the early columns shows no granules, has no colloid and holds no secretion within its confines at this stage. In fact, the epithelial cells

appear as syncytial-like substance in the column. The number of columns in each gland unit has not been determined as reconstruction by wax models has been unsatisfactory, but it is believed that only one will eventually be found to exist.

In 1894 Hurthle said that thyroid epithelium had two processes, each of which accumulated thyroid products within the follicle through its individual efforts, and he could not accept these activities as the expression of only one function, viz., the production of colloid. Two kinds of epithelium supposedly exist in the thyroid parenchyma, namely, follicular and non-follicular. The former probably creates the follicles and their colloid while the latter forms similarly the interfollicular tissues, creating additionally the so-called "cell nests," or "rest cells" of many writers.

The gland units of a column may be follicular, nonfollicular, or a combination of both, and any gland unit may demonstrate all three of the types at different times. The gland unit can perform but one phase at a time. It must first return to the indifferent or rest phase. Therefore, the physiological demand for a certain secretion must determine the type of function to be exercised from these columns at a given time. There is apparently no anatomical entity that supplies one definite secretion.

The physiological function of the thyroid gland consists of two phases, one of these being the passive production and storage of iodo-colloid by the epithelium of the column, and is called *vesiculation*. The other phase is the active production of a lymph-like *secretion* within the cells of the epithelial columns, assisted by the endothelium of the lymph channels and by such reticulo-endothelial cells as may be associated in the sinusoid. Both of these functional activities begin from an *indifferent or rest phase*. The gland unit can perform but one phase of functional activity at a time. But any gland unit may return to the rest stage and then prepare for either functional activity. The distinctive features of the indifferent stage in the gland unit show that:

1. The cells of the epithelial columns have no basement membrane around them. The arterial and lymph endothelium when present is directly in contact with the surface of the columns. Sometimes the epithelium of columns presses against contiguous columns till their protoplasm seems to fuse.

2. The column of nucleated syncytial epithelium is solid. There is no preformed lumen.

3. The protoplasm of the epithelial column



is syncytial in character, contains no granules, and is peripheral to the nuclei of the mass. It cannot be differentiated into spongioplasm and hyaloplasm.

4. A system of solid tubules is found embedded as network in the protoplasm internal to the nuclei at this stage.

5. The nuclei are huddled together toward the center of the column, nearer the tubular system than the periphery. They stain lightly and have no clear internal structure.

This indifferent phase soon changes and the process of vesiculation appears. It may be seen in different levels of the column, usually within those sectors between the junction of the communicating vessels with the main vessels of the columns.

As vesiculation begins small droplets of colloid having around them a clear halo of hyalin protoplasm appear within the epithelial cells. The tubular system of microcapillaries form their lumen, and the mesh opens. The nuclei remain centrally placed. The protoplasm of the cells reacts as hyalin, looks "spongy" but contains no granules, and there are no granules seen within the tubular mesh at this time.

The process of vesiculation and storage is a passive one, and all the other structures in the gland unit except the follicles are inactive throughout this stage. While the process of vesiculation is going on in many of the epithelial columns of the gland unit, other columns in the indifferent stage prepare for the stage of secretion and changes occur to the endothelium of the lymph and blood vessels as well as to protoplasm and nuclei of the cells.

Secretion begins within the protoplasm as the cells become swollen and fine rod-like chromatic granules accumulate within it. Soon the nuclei migrate from the center position of the cell to the periphery of the column and arrange themselves concentrically. Nucleus and nucleolus both become granular and both stain very dark. A second set of coarse granules next appears in the protoplasm between the nuclei and the system of tubules. Vacuoles containing clear fluid are formed in the protoplasm and fine granules are noticed in the vicinity of the tubules. As vacuolation occurs the coarser granules disappear from the protoplasm and may be seen within the tubules in the clear fluid they carry. The vacuoles congregate without fusion in the protoplasm (honeycomb-like), or they may fuse to form a "lake" in the central core which now has very irregular and indented borders.

The process of secretion shows different grades of functional activity in the epithelium, such as advanced vacuolation or chromatism at one place, and the early appearance of rod-like

granules in another. The secreted fluid when "laked" is usually near the tubules and the main mass of protoplasm lies between the nuclei and the tubules, giving the high columnar appearance to the cells.

Longitudinal sections of the columns show that secretion occupies the entire length of the column. The column when seen in fresh specimens of thyroid tissue is boggy and flaccid because of the thin fluid it contains, and no attempt at discrete folliculation or fragmentation occurs in this phase, as contrasted with the phase of vesiculation. No hyperplasia has been noted with all this trophic activity.

As soon as secretion is established in the epithelium the other structures of the sinusoid begin to function. The intralobular potential lymph capillaries open and soon the lymph sinusoid contains a fluid similar to that contained in the "lacunae" which separates the surfaces of the epithelial columns, and in addition bathes the blood capillaries around them. The secretion thus formed is absorbed quickly but when the accumulated laked substance is stored in the sinusoid it remains there for a comparatively short time.

Concurrently, lymphocytes surround the capillaries at each gland unit hilus and always may be found in the intralobular lymphatics. Proliferation occurs in the endothelial lining walls of the sinusoid and lymph channels, so that free endothelial, endotheloid and epithelial cells are mixed with the lymphocytes within these spaces.

Secretory activity is present in the normal gland in very small and variable amount. Grossly, the opaque areas, whitish streaks, or lines seen on the cut surface in an apparently fresh normal gland, indicate such secretory activity. Finally, these areas, showing varying amounts of normal secretory activity of the gland, become pathological only when "strain" for some kind of compensation has been enforced too long, thereby causing prolonged overactivity and resulting fibrosis.

In his anatomical discussion of the thyroid, Williamson has spoken of certain features under the present conditions as being necessary for a better understanding of the thyrothymic apparatus, consisting of the thyroid, parathyroid and thymus glands, controlled in some way by the sympathetic nervous system.

First of these, the thymus lies in a compartment of the cervical fascia of the mediastinum, separated from the neck by a fibrous diaphragm. It is a lymphoid structure which gradually disappears leaving Hassall's bodies as the most characteristic remnant of the epithelial tissue. It is made up of lobes and lobules having interlobular fibrous and some

areolar connective tissue. The usual supply of blood and lymph is found in this connective tissue. The blood vessels break up in a network of capillaries in the interlobular connective tissue before penetrating the cortex and the medulla. The lymphatics begin in the follicles, then communicate with the interlobular connective tissue and eventually reach the surface of the gland. (Piersol.)

The thymus gland atrophies about the second year of life. This shrinkage affects mostly the fatty portion of the gland while the true thymic tissue remains in large part and continues to function. Its shrinkage is regarded more as a metatrophy than an atrophy because there still remains power of functional variation in the gland to convert or form lipiodol and vesiculated fat as well as lymphocytes.

Gulland and Job believe it is possible for the vesiculated fat of the thymus to metamorphose into tissue-bearing lymphocytes under the influence of the lymph glands. They also believe endothelial germ centers may develop in preformed lymph glands under this same activity. The lymphocytes that form and are active in the thymus probably do not go through the general circulation but live and die within the confines of these glands. At times, some thymic tissue is scattered all along the neck from the base of the skull to the arch of the aorta, as thymic-fat-gland tissue.

Hassall corpuscles normally existing in the thymus have also been found in the thyrothymic leash and the thymic-fat-gland tissue in the lower part of the thyroid lobes. These and other well known anatomical facts about the thymus tend to show a functional association between it and the thyroid gland.

The parathyroid glands, the last of the group, are brownish-red bodies about the size of an orange seed. There are two for each lobe and usually are embedded in the gland substance or found in its capsule. One of these is found at the superior pole near the superior thyroid artery, the other at the lower pole enmeshed in the loose areolar substance close to the inferior thyroid vessels. They lie enmeshed on the mesial surface of the gland close to the tracheal fascia and, while they may be broken up into many smaller portions, normally they are found as described. Often they are scattered and lie embedded in or associated with the thymic lymph bodies.

Each parathyroid that Williamson and Pearce have examined has shown a ganglionated branch of the superior or middle sympathetic ganglion going to or found in it which seems to act as the regulator of the parathyroid function.

The parathyroid gland is made up of solid masses or columns of epithelium separated by

intervening capillaries and endothelial cells devoid of connective tissue. There is lymphoid tissue between the columns connecting them.

These tubular masses contain at times a lymph-like fluid, and when such is found it is associated with a marked secretory activity in the thyroid gland. At times, both the fluid and the lymphocytes seen in the thyroid may be found in the parathyroid tubules and, under extreme degrees of parathyroid activity, both have been traced from the thyroid gland through the perivascular lymphatic channels to the parathyroid glands.

This fluid supposedly on its way to the thymus, gaining contact with the sympathetic system nerves in the parathyroid gland, is believed in this way to activate and regulate functional activity of the parathyroid, and because of these beliefs the thymus and parathyroid glands are thought to be closely allied in functional activity with the thyroid.

From a review of their work, one can be influenced in favor of the theory advanced by Williamson and Pearce and their rather novel ideas on thyroid function. However, it would be difficult for me to answer the number of questions that I have asked myself during this study of their work.

Their photomicrographs of apparently normal thyroid glands showing active secretion and passive colloid storage side by side in the same field, seem convincing. And yet, we often find areas of hypertrophy and hyperplasia in thyroid tissue, removed at operation from goiter patients who had no clinical manifestations of toxicity, that are similar in every way histologically to the areas proclaimed by Williamson and Pearce to be those in a normal state of physiological activity.

Considering these facts one might regard the so-called areas of hypertrophy and hyperplasia seen under such circumstances as merely areas of normal epithelium in process of physiological secretion. De Quervain has recently raised this question: "If such is the case, when do these normal secretory areas become abnormal?" Probably only when "strain" by the body tissues demanding more thyroid products has been too long continued, with resulting fibrosis. Then thyrotoxicosis will probably be found in the patient.

In 1930 Rienhoff by means of reconstructed wax models showed what he considered sufficient proof that the gland unit of the thyroid is a follicle and not a lymph sinusoid. Jackson recently has expressed the same opinion. There is no question that this conclusion is considered by most observers to be correct. Nevertheless, it is impossible to ignore because of prejudice this painstaking and careful study



covering seven or more years by Williamson and Pearse. While Rienhoff was making his model of the inside follicles Williamson and Pearse were trying to reconstruct with wax the epithelial columns of the sinusoid.

Rienhoff did another outstanding piece of research work when he successfully injected the lymphatics of the thyroid with India ink and Gerota's Prussian blue. He injected the collecting lymph channels of the left lobe and forced the fluid through the pretracheal fascia across into the right lobe and out through its lymph channels into the cervical lymphatics of that side. Then he was partially successful in reversing the process and put some fluid into the mediastinum as well as in the left cervical lymphatic glands and channels. He has shown that the lymphatics begin in the interfollicular stroma and that none are found in the follicles around the parenchymal cells at the base of the epithelium of each of the follicles. The lymph system lies external to the rich vascular network of blood vessels. This is antagonistic to the idea of lymphatic supply as given out by our authors. Because of these conditions Rienhoff disagrees with Williamson and Pearse and believes the functional secretions are absorbed and carried by the blood vessels from the follicles. But no definite physiological cycle is left to us when we exclude the one recently given us by Williamson and Pearse.

Further study will eventually give us the correct solution to these different conceptions of thyroid anatomy and physiology. The element of time will be an important factor in obtaining such information as will be necessary to definitely settle the questions discussed in this paper.

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## GONOCOCCAL ARTHRITIS\*

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### INTRODUCTION

Every practitioner of medicine has had to deal with gonococcal arthritis. There is nothing more disconcerting in medicine than to have this complication develop during the course of treatment of a case of gonorrhea. The patient is doing well. He tends to minimize the seriousness of his malady. Perhaps the physician has assured him that he will not be incapacitated during the course of the disease and will probably recover within from four to eight weeks. And suddenly he appears limping, or

with a swollen wrist, or he phones that he is in bed with an exquisitely painful knee. We are not confronted with a real economic problem. The patient must stay in bed for a period of time. Explanations to his employer are unsatisfactory at the best. His income is jeopardized. He may or may not have provided for an emergency. The blame is quite likely to fall upon the physician for this new development and the physician is implored to get the patient up and at work as soon as possible. As we all know, the treatment of this condition is not particularly satisfactory. Some clinicians are inclined to think the untreated cases do as well as the treated cases. I shall have more to say about this later.

In presenting this paper I am merely attempting to crystallize our thoughts about this condition, reviewing the various methods of handling these cases and comparing the results reported. I do not purpose to add to the already too many treatments.

### ETIOLOGY

Gonococcal arthritis occurs at all ages. Cooperman,<sup>1</sup> in 1927, reported 44 cases in young infants infected shortly after birth. In a large maternity hospital in Philadelphia in 1924 an unusual outbreak of gonorrheal infection occurred among the new-born infants. Of the 182 infants born 67 were infected and 53 of them presented joint complications. As gonorrhea is a disease of young adults so also is gonorrheal arthritis. By far the largest number of cases are between the ages of 20 and 30, probably more than 60 per cent. In the reported cases males predominate. In most series only about 2 per cent are women. This can be discounted, however. The diagnosis of a specific genital infection in women is difficult and for the same reason the history is not reliable.

The incidence of the disease as indicated by most writers shows that from 1 per cent to 3 per cent of the cases of acute gonorrhea develop joint involvements. This is the most common of the complications of gonorrhea. The percentage is probably higher. Many so-called arthralgias are not included but they should be. Mild cases do not come to the attention of hospitals to be included in their reports. When we consider the incidence of gonorrhea itself even 3 per cent of the cases places gonorrheal arthritis in an important position as regards its economic importance.

Trauma and exposure to cold may be predisposing factors. Previous attacks of non-specific arthritis or rheumatic fever may also be factors. There is no evidence to support

\* Read before the Buchanan County Medical Society, April 1, 1931.

this, however. It is probable that previous attacks of gonococcal arthritis predispose the development of arthritis during subsequent attacks of gonorrhea. In Wehrbein's<sup>2</sup> series 56 per cent had repeated attacks of gonococcal arthritis. On the face of these figures an attack of arthritis during the course of gonorrheal urethritis certainly constitutes a warning against subsequent attacks of urethritis.

The joints affected in order of frequency are the knee, ankle, foot, wrist, hip, heel, toes, shoulder, elbow, and temporomaxillary. Other joints occasionally involved are the sacro-iliac, sternoclavicular, intervertebral, crico-arytenoid and peroneotibial.

It has not been demonstrated that there is any definite relation between the occupation of the individual and the development of an arthritis during the course of gonorrhea. It is noted that the arthritis of the lower extremities predominates. However, it must be remembered that most reported series are from hospital cases. Those cases involving the upper extremities are frequently not hospitalized, hence the preponderance of lower extremity cases in the usual series.

The incubation period of the arthritis is variable. Cases have been reported from one day to four months following the onset of the acute urethritis. The incubation period is shorter than that usually held by most physicians. Seventy-five per cent of the cases will develop within 15 days of the onset of the urethritis. In one case reported an acute urethritis developed three days following exposure; on the following day an acute arthritis was present.

Since the demonstration of the gonococci in the fluid aspirated from the affected joint the gonococcus as the causative organism is not disputed. In about 97 per cent of the male cases of gonococcal arthritis, at least a urethritis is present. Positive smears from the urethra are obtained in a smaller per cent of cases, depending on the time since the onset of the urethritis.

#### PATHOLOGY

There were two theories regarding the mechanism of the disease: one was that a toxin was the etiological agent in producing the arthritis, the other was that the organisms themselves were directly responsible.

Wassermann injected into himself a toxin obtained from the growth of gonococci and noticed joint pains for several days following this. He advanced the theory that the arthritis was caused by the toxin alone, carried by the blood stream into the joint. It was not long, however, until the gonococci were found in smears from the joint fluid. Not all cases will

give a positive smear but it is believed that gonococci may be found on the synovial membrane lining the joint cavities even when not present in the fluid.

Although it is only in the severe cases of gonococcal septicemia with endocarditis and other hematogenous manifestations that gonococci can actually be cultured from the blood, yet it is now almost generally held that the organisms are carried by the blood stream to the joints, producing the arthritis in every case.

The portal of entry is almost always the genital tract.<sup>3</sup> If careful search is made a focus of infection can be demonstrated. It may be the prostate; frequently the seminal vesicles are the offenders. In the female, the fallopian tubes, Bartholin's glands or the cervix often act as the focus. However, the genital tract is not always the portal of entry. Cases are reported in which arthritis complicates a gonococcal ophthalmitis.<sup>1</sup>

There is at present no satisfactory classification of gonococcal arthritis. A classification based on the severity of the infection, as suggested by König,<sup>4</sup> seems to be the best. This classification follows:

Type I is the mildest form. There is slight or no fever. The joint represents a simple hydrops. The synovial membrane is injected but there is no erosion of the cartilage nor bony change. The fluid is faintly turbid or it may be clear.

In type II there may be a slight rise in temperature or high remittent fever. There may be slight erosion of the cartilage in this type. This is the sero-fibrinous or catarrhal type and the fluid is generally turbid and contains large flakes of fibrin. This is the most common type of gonococcal arthritis.

Type III is the true empyema. There is cartilage erosion and occasionally bony change seen by the roentgen ray. The temperature may be quite high. Septicemia may occur. The aspirated fluid is purulent and of a pea-green color.

Type IV is the phlegmonous type. The temperature may not be high but the infection is overwhelming. The infection extends into the surrounding tissues distal and proximal to the joint, and involves the tendon sheaths and bursae. Subluxations and contractures are common. These are the cases in which bony ankylosis may occur. Secondary infection as a rule has occurred, usually with staphylococcus or streptococcus.

#### CLINICAL COURSE AND SYMPTOMS

During the course of a genital infection with the gonococcus there will be noticed a slight



general malaise, perhaps a chill, followed by profuse perspiration. The first joint symptom is usually pain in the smaller joints of the hands and feet. This is transient, however, and soon the pain tends to localize in one or two joints, the knee, the wrist or some of the other joints commonly affected. Contrary to the usual opinion, the joint involvement is almost always multiple. Cole states that there is a polyarthritis in about 94 per cent of the cases. Wehrbein in his Bellevue Hospital series states that 410 out of 600 cases presented a polyarthritis. Julien reports 143 out of 348. It must be remembered that many cases are seen in the later stages when the attention is focused on one particular joint. The history of previous involvement of other joints is forgotten by the patient.

The pain is exquisite and movement of the joint is very difficult due to muscle splinting. The pain is probably due to the stretching of the joint capsule by the effusion. The course of an acute gonococcal arthritis may not be unduly prolonged; 65 per cent of the cases is able to return to their daily tasks within three weeks. The remaining 35 per cent of the cases becomes chronic and has alternating remissions and exacerbations which are very difficult to control. The diagnosis is not always clear unless the cases have been observed at the beginning, and they join the ranks of the many sufferers from chronic arthritis which circulate from doctor to doctor without obtaining much relief.

#### DIAGNOSIS

An acute arthritis occurring during the course of gonorrheal urethritis is almost sure to be gonococcal arthritis. The previous history of gonorrhea associated with rheumatism increases the likeliness of the arthritis being of gonococcal origin. Teeth and tonsils should be investigated as foci of a nonspecific arthritis. Fever and leukocytosis are not constant findings. There is moderate anemia. In the differential diagnosis the following conditions should be considered:<sup>5</sup> Acute rheumatic fever, tuberculosis, gout, arthritis deformans and septic joints with osteomyelitis. The services of the radiologist should be enlisted in doubtful cases. No matter how large the effusion, we do not see the marked relaxation of the ligaments with dislocation and deformity unless the joint is suppurating. In that event the swelling extends to the neighboring joints. The points of special tenderness are over the insertion of the tendons. In tuberculosis the special points of tenderness are over the bony prominences. Crepitus indicates involvement of the tendon sheaths.

There is no typical joint fluid but its character is an indication of the virulence of the infection and gives some basis on which to base the prognosis. The most common type of fluid is a golden yellow with flakes of fibrin in it. There are many polymorphonuclear leukocytes present with some mononuclears. An increase in the proportion of mononuclear leukocytes indicates a good prognosis.

About the same joints are involved in gonococcal arthritis as in acute rheumatic fever except the temporomaxillary joint which is never involved in acute rheumatic fever. Acute rheumatic fever is migratory, involving many joints in succession. The joint symptoms are more acute, the temperature is higher, sweating and prostration are more marked. However, chills and sweating are present in gonococcal arthritis if the joint is purulent. In acute rheumatic fever the joints first involved may clear up as others become affected. In gonococcal arthritis one or two joints together will recover and then the same joints become worse and again clear up. The absence of gonococci or other signs of infection in the genito-urinary tract, especially with antecedent joint attacks, favors the diagnosis of acute rheumatic fever. The finding of gonococci in the urethral smear is of course not diagnostic. Neither is a positive reaction with the complement fixation test. It must be borne in mind that urethritis may be present incidentally with any of the other conditions named above. However, Thomas<sup>6</sup> states that the demonstration of gonococci in the genito-urinary tract of a patient with rheumatism is almost conclusive evidence of a gonococcal arthritis. The presence of gonococci in the aspirated joint fluid is of course pathognomonic.

#### TREATMENT

The number of different kinds of therapeutic measures advocated for gonococcal arthritis is indicative of the inadequacy of all of them; however, even the untreated cases do not fare so badly. But it must be kept in mind that the untreated cases are usually the milder ones. If the pain is severe the patient will demand some treatment. If we relieve the pain by splinting, traction, or other measures and do nothing else the majority of the cases will do well. Of course one must watch closely for the development of conditions requiring surgery and not hesitate to consult with the surgeon. A good result is dependent upon prompt attention to this. Those cases which suppurate, with peri-articular involvement, are likely to end with bony ankylosis if not carefully watched.

The treatment<sup>7,8</sup> may be divided into that directed to (1) the joints involved, (2) the focus

in the urethra or elsewhere, and (3) the general systemic treatment.

The following measures have been recommended in the treatment of the joint:<sup>6</sup> Elevation, local applications, counterirritants, the application of a Paquelin cautery to the skin, lotions, ice, heat by packs, constrictive hyperemia, massage, diathermy, roentgen ray, radium, ultraviolet ray, red quartz lamp, compression, active motion in a warm bath, compresses soaked in lead and opium, and immobilization of the joint with a cast or brace or extension.

Surgical procedures include aspiration of the joint and lavage with antiseptic solutions. The following have been used: formaldehyde 2 per cent in glycerine, tincture of iodine, acriflavine, mercurochrome, serums, ether. Following aspiration compression bandages are applied. Arthrotomy is done in selected cases, depending on the nature of the aspirated fluid.

Treatment directed to the focus includes: Urethral irrigations with any of the solutions ordinarily used such as potassium permanganate or acriflavine; prostatic and spermatocystic massage; injection of the seminal vesicles by vasotomy or vasopuncture; injection of the ejaculatory ducts through an endoscope; injection through the rectal wall or the perineum; seminal vesiculotomy or seminal vesiculectomy; prostatotomy or prostatectomy.

Systemic measures which have been employed include (a) chemotherapy, (b) protein therapy, (c) specific vaccine and serotherapy and (d) drugs by mouth.

Intravenously the following have been used: Colloidal silver or iodine (Pregl's solution),<sup>9</sup> mercuric chloride, acriflavine, mercurochrome,<sup>10</sup> calcium chloride, amiodoxyl, sodium iodide alone or in conjunction with salicylates.

Milk, aolan, gonolin, autohemotherapy, non-specific vaccines (typhoid) intravenously and intramuscularly, phylacogens and immunogens, and bacteriophages have all been tried. Autogenous and stock gonococcus vaccines and gonophages have given good results in some hands. Reinjection intramuscularly of the aspirated joint fluid was recommended by Ballenger<sup>11</sup> in 1926. His results were very good but in the hands of other men his success was not repeated. Drugs by mouth include salicylates, arsenic and potassium iodide.

In the cases treated four received salicylates, four had gonococcus immunogen and three were given sodium iodide. Aolan was given in one case and mercurochrome intravenously in one case. Treatment to the genital focus was given in all but three cases. Prostatic massage was given in four of the eight male patients. Treatment directed to the joint itself consisted

of extension with traction under anesthesia in 3 cases, Bier's hyperemia 2 cases, immobilization with cast 1 case, with splint 2 cases, adhesions broken up under anesthesia 1 case, operative removal of infected pelvic organs 1 case.

The average stay in the hospital was 18 days, the longest 56 days, the shortest 2 days. All cases recovered complete use of the joint involved.

With the numerous therapeutic measures suggested and in use today it is somewhat of a problem to know just what to do when confronted with an acute case of gonococcal arthritis. I will outline a method of treatment which is expected to bring about the result desired, namely, to return the patient to usefulness as soon as possible with no disability or the least possible degree of disability.

In the first place rest is essential. However, this can be overdone. In the case of lower extremity involvement, the patient should not be kept in bed longer than is absolutely necessary. The amount of pain is the index for this. Serious damage may be done by putting the joint at rest for too long a period. In 1921 Collins<sup>12</sup> recommended applying a cast for two weeks, removing and reapplying a new cast for two weeks more. This is not done any more. The cast should not be allowed to remain longer than from a few days to a week. The purpose of the cast is to relieve the pain and it is removed as soon as the patient can permit its removal. Frequently, the pain itself will be a sufficient splint. The limb should be elevated on pillows and handled with care. The cast is not applied unless the pain and discomfort are of such severity as to demand it.

Active and passive motion in a bath of body temperature should be begun as soon as possible. The prevention of muscle atrophy and ankylosis is a consideration of first importance in the treatment. Aspiration is indicated if there is a large amount of fluid present. If purulent, the question of arthrotomy is to be considered and the surgeon consulted.

Regarding the use of vaccines it would seem that there is considerable difference of opinion. Gonococcus vaccines are toxic. Other vaccines used as foreign proteins are probably better. The administration of vaccine<sup>13</sup> is "simply an attempt to accelerate the complex defensive mechanism of the body by giving it a protein shock." The primary therapeutic factor is the rise of temperature. The illusion that a high temperature *per se* kills the gonococcus has been disproved. This is true *in vitro* but not *in vivo*. During the last year I have observed cases in which the temperature of the body was



gradually raised by hot baths. Temperatures as high as 108 to 109 degrees Fahrenheit were maintained for a definite length of time. The gonococcus may disappear from the urethral discharge for a day or two but in every case the organism reappeared within a few days.

When typhoid vaccine is used intravenously some improvement is almost always noted by the patient. The pain decreases. Perhaps the subjective improvement in the patient's condition is due to a psychological mechanism. He is so wretched during his protein shock that his primary sickness impresses him less than before. This would account for the slump that always occurs in two or three days following the improvement. Other proteins used are aolan, whole milk and casein. Infections with the malarial parasite<sup>14</sup> have also been used. Typical tertian malarial temperature curves have been produced by using a foreign protein. The reactions are severe, however, and one would almost prefer the disease to the therapy. Many patients will not consent to the second injection of a foreign protein following their first shock. One death was reported at Bellevue Hospital following the intravenous use of typhoid vaccine in the treatment of gonococcal arthritis and since then the method has not been used in that hospital. The intravenous administration of typhoid vaccine however has been widely practiced without mishap and I do not believe this one accident should preclude its use. The vaccine should be of unquestioned purity and potency.

The initial dose should be about 50 million and the amount increased at each injection. If no appreciable objective improvement is noted in the joint itself after two or three injections at intervals of about two days this form of therapy should be discarded. I have seen improvement in many cases. A small percentage, however, does not respond.

Recently, treatment of the joint by roentgen ray<sup>15</sup> has been introduced. Good results are reported but the measure has not been used sufficiently long for an opinion to be formed regarding its value.<sup>16</sup> Twenty-five per cent of an erythema dose, with cross fire, using an aluminum filter is the method used.

In regard to the chronic cases of gonococcal arthritis, clinical experience indicates that treatment directed to the genital focus is the most successful therapeutic measure that we have at the present time.

Summing up the treatment of the acute cases I would suggest the following measures: (1) rest, (2) application of a cast with extension if necessary to control pain, (3) intravenous use of typhoid vaccine, (4) irradiation of the af-

ected joints, (5) local treatment of the focus, (6) surgical intervention if necessary, (7) early active and passive motion of the joint with local application of heat by diathermy, bakes or hot baths.

I have a series of 12 cases seen in the Missouri Methodist Hospital and the St. Joseph's Hospital during the last three years. Four, or 33 per cent, were females and 8, or 66 per cent, were males. Two were farmers, 2 laborers, 3 housewives, 1 truck driver, 4 were not recorded. The average age was 37.4 years the youngest being 16 and the oldest 64. A history of gonorrhea was given in 7 cases or 57 per cent, 4 denied infection, 2 or 17 per cent gave a history of previous rheumatic attacks probably not gonorrheal and 2 or 17 per cent gave a history of repeated attacks of gonorrheal rheumatism. The joints involved in order of frequency were: knee 8 cases, wrist 4, ankle 3, finger 3, hip 1, foot 1, jaw 1. Polyarthritis was present in 7 cases or 58 per cent while in 5 cases or 42 per cent only one joint was involved. In 4 cases smears from the genital focus were positive and 7 cases had definite evidence of a genital infection.

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## TUBERCULOUS LESIONS OF THE EYE IN ACTIVE PULMONARY TUBERCULOSIS

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Ophthalmologists in general are aware that an active tuberculous process in the eye is extremely rare in an individual with active pulmonary tuberculosis. The diagnosis of ocular tuberculosis is of necessity based primarily on experience in seeing these lesions, on tuberculin tests and the absolute elimination of any other cause for the condition. Rarely, the eye or a portion of its adnexa may be removed for biopsy but when this is feasible the pathological report is usually positive.

A cursory review of the literature and the views of others on the use of tuberculin in ophthalmological cases is not amiss. Friedenwald<sup>2</sup> quotes Lowenstein's summary<sup>1</sup> as follows: "In the eighties of the last century the

eye was generally regarded as immune to tuberculous disease. Only under the pressure of anatomical evidence was the idea finally accepted that the rather infrequent caseous lesions of the eye should be considered tuberculous. Michel was the first, in 1890, to emphasize the overwhelming importance of tuberculosis in the etiology of ocular disease. He met at that time with violent opposition on the part of his colleagues. How true Michel's contentions were can be seen in the wide acceptance today of the idea that there is no part of the eyeball which cannot be affected by tuberculosis, and that certain diseases, for example those of the uvea, are 50 per cent of the cases produced by tuberculosis."

Friedenwald<sup>2</sup> amends this with these words: "While everyone would not place this latter figure so high, no one would deny the general validity of this statement."

The American Encyclopedia of Ophthalmology<sup>6</sup> has the following to say concerning tuberculosis of the eye: "All tissues of the eye may become involved in a tuberculous process. Even the lens has been reported as having been invaded by the tubercle bacillus.

"The primary, nontraumatic form of tuberculosis of the eye is rare and is confined to the lids, conjunctiva, cornea, caruncle and lacrimal sac, viz., to areas which are directly exposed to the invasion of tubercle bacilli from external sources, i e., air, dust, etc., and is exogenous.

"Primary tuberculosis of the iris, optic nerve and other intra-ocular tissues not associated with trauma, has been reported, but it is probable that an undiscovered latent tuberculous focus existed in some portion of the body and was the source of the infection."

The last statement is important and undoubtedly is the view held by ophthalmologists in general because of their insistence on the treatment of these cases with tuberculin. Some conclusions of Luedde<sup>4</sup> concerning the significance of tuberculin are worthy of repetition:

"1. A focal ocular reaction caused by a test injection of tuberculin renders the diagnosis of ocular tuberculosis highly probable but does not make it absolutely positive.

"2. The therapeutic benefits obtained from the use of tuberculin in ocular tuberculosis must be recognized but can be explained rationally either as a specific or nonspecific effect.

"4. Further research is needed to discover the unknown factors concerned in resistance to tuberculous disease. Thus the treatment of tuberculosis may be placed on a definite scientific basis which it can hardly be said to possess at the present time."

The nonspecific activity of tuberculin was in-

vestigated by Petersen,<sup>5</sup> who feels that although the cutaneous reaction appears to be specific the resistance to it need not be so. Also, the treatment has no specific significance and the beneficial effects have no relation to an active immunization. Clinical investigators, however, have not agreed that tuberculin is without merit.

In the epoch-making work of Ranke<sup>6</sup> the thought is expressed that allergy plays an important part in the tissue cell reaction. Derby and Carvill<sup>7</sup> in their work on tuberculosis of the anterior eye are emphatic in stating that tuberculin therapy does not prevent recurrences, although it may help in the acute attack, and they feel that tuberculin is often dangerous. Hertel<sup>8</sup> thought the results from spontaneous cures had been too little considered.

Contrasting the above opinions are many. Kiefer and Shulman<sup>9</sup> in an extensive report show that tuberculosis of the eye is much more common than is generally conceded and conclude that better results in their cases were obtained when tuberculin was used than when not used.

In a complete and most comprehensive review of the literature King<sup>10</sup> draws these conclusions:

"1. The preponderance of evidence indicates that tuberculin is of great value in the treatment for ocular tuberculosis.

"2. In ocular tuberculosis, the attitude of the ophthalmologist that he is dealing, except in primary ocular tuberculosis, with a tuberculous subject who has a secondary incidental ocular localization will be fruitful in the future in enhancing the value of specific therapy in the cure of the ocular lesion as well as in the prevention of recurrences, which depends on rendering the primary focus inactive under the influence of a favorable state of relative immunity.

"3. The further compilation of more reliable statistics is desirable.

"4. Personally, I feel compelled to take my stand with Ranke, who believes that further progress in tuberculin therapy is only a matter of time, and with Neumann, who contends that failure to use it in properly selected cases will result in avoidable loss of sight and needless suffering."

The words of Edward Jackson<sup>11</sup> will indeed add weight in this study. He says:

"If there is one lesson of my professional life that stands out more strongly than any other, and which seems to deserve all the emphasis that can be possibly put upon it, it is that an enormous number of tuberculous focal infections occur in persons not considered



tuberculous by themselves, their friends or even their physicians."

The report I present brings nothing new but simply attempts, by emphasizing certain facts concerning ocular tuberculosis, to encourage closer cooperation between the medical specialist on tuberculosis and his ophthalmological colleague in the further study of this most interesting phenomenon. Through the courtesy of Dr. Selig Simon, medical director of the Jewish Sanatorium near St. Louis, Missouri, the opportunity of examining the eyes of patients at that institution was mine for a period of five years, from September, 1924, to September, 1929. The average daily number of tuberculous individuals hospitalized is fifty and the average yearly turnover for the past five years is thirty-six. While this does not constitute a large number of cases, I feel that the facts and conclusions arrived at from the thorough routine examination of these patients over a number of years will be of some value.

The eye examination consisted of inspection of the brows, lashes, conjunctivae, lids, corneae and irides for signs of abnormality or inflammation. Visual acuity was recorded and refraction done where indicated. The fundi were examined under a cycloplegic in all cases and a thorough search was made for any evidence of retinal or choroidal pathology. Accurate descriptions were made of all fundi which showed any change from normal. At times the patient was brought to my private office for more complete study. As I have stated previously, only abnormal cases were described in detail therefore it is not known just how many patients were examined but the records show a list of sixty-eight written accounts. Of this number only two are of interest in this discussion, the others being entirely negative for any signs of tuberculous eye lesions. It is not my purpose to lengthen this paper by statistical notes on the various cases, but the two mentioned seem worthy of consideration in detail.

#### REPORT OF CASES

No. 36. D. K., woman, aged 19, active lesions in lungs. Visual acuity 20/20 or 6/6 in both eyes. External examination negative. Right fundus normal under dilated pupil. Left fundus shows tiny yellowish plaques along inferior temporal vein. Refraction +2.0. Question of tuberculous lesion. One month later on more detailed investigation no change was found. Diagnosis, Gunn's dots.

No. 68. J. N., man, aged 22, active lesions in lungs. Visual acuity, right, 20/50 or 6/15; left, 20/40 or 6/12. Lids and lashes negative. Both eyes show a moderate degree of circumcorneal injection, pupils do not react in entirety and the slit-lamp shows synechiae almost entirely around the border of both irides. In places, the iris showed small club-shaped formations which were diagnosed as tuberculous. The patient was re-

moved to the Jewish Hospital for tuberculin therapy for this condition. The medical staff was very much opposed to this line of treatment in an individual with active pulmonary lesions and after a short course without improvement the patient was released and lost track of.

Tuberculous lesions of the eye in individuals with active pulmonary tuberculosis are rare and yet such lesions are rather frequent in persons without pulmonary activity. Of what value is the Pirquet, Mantoux, dermatotuberculin, or old tuberculin test in active ocular tuberculosis? Is tuberculin therapy contraindicated in these cases? Is it prohibitive in cases where there is also active pulmonary affection? Perhaps the report of such a survey will hasten the answering of such questions and many others and bring about a better understanding between the specialist in tuberculosis and his colleagues in other specialties.

Work of a similar nature to this will be carried on at the Chicago Winfield Tuberculosis Sanatorium and The Edward Sanatorium.

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## THE NEW ERA IN SURGERY\*

CARYL POTTER, M.D.

ST. JOSEPH, MO.

At the recent meeting of the British Medical Association Lord Moynihan, chairman of the surgical section, in introducing the symposium on surgery of the sympathetic nervous system, said, in substance:

The craft of surgery has reached its zenith. When one can do one thousand operations for duodenal ulcer with but one single death, surely craftsmanship has reached its limit of efficiency. With Lord Lister began the pathological and bacteriological, and hence aseptic era of surgery, during which the etiology of diseased tissue has been revealed and the morbid process removed with safety. This intro-

\* Discussion of a case of Raynaud's disease before the staff conference of St. Joseph's Hospital, November, 1930.

duced and has developed the surgical pathologist and has brought him from his laboratory to the surgical pavilions where he is now an indispensable part of every surgeon's armamentarium. It afforded him great pleasure to proclaim that England had again the honor to introduce a new epoch in surgery—the physiological—in the beginning of which a fellow countryman, scientist, and surgeon, Dr. Royle, of Sidney, Australia, working in a remote province of the British empire, had by his momentous contributions to the surgery of the sympathetic nervous system amazed the world by proving that it is wholly possible for surgery to improve the physiological function of normal organs.

These momentous words of Lord Moynihan have been definitely substantiated in the recent five years by the brilliant results obtained following the removal of the seventh cervical and first and second dorsal sympathetic ganglia for Raynaud's disease affecting the arm, and the second, third and fourth lumbar ganglia not only for the same disease in the legs but also for polyarthritis of the arthritis deformans type, megalocolon, or Hirschsprung's disease, chronic spastic types of constipation, and cord bladder.

Lane, in demonstrating that he had cured many cases of polyarthritis by means of a colectomy, probably tore up and disturbed the sympathetic nervous system to such an extent that the results were probably obtained from a haphazard sympathectomy rather than from colectomy.

Observe then, the possibilities ahead. Essential hypertension with its hypertensive spasm is perhaps—and up to the present time only perhaps—a disease of sympathetic nervous system origin. An American surgeon recently stated that in the course of a recent cholecystectomy in a patient with a blood pressure of 230, he palpated a swelling the size of a small plum in the region of a ganglion of the sympathetic system and removed it. On microscopic examination it proved to be an enormous ganglion. Immediately after the operation the patient's blood pressure dropped and within a week had fallen to 130, above which it had never since risen.

Does that one case prove anything? No. Does it give food for thought? Yes. One may ask: Could an enlarged, overactive sympathetic ganglion or multiple ganglia send charges so rapidly and so repeatedly to the vascular system that the vessels are in a constant and increasing state of hypertension? Or, vice versa, could the emotions of a "high-powered" individual in a constant state of hypertension cause an enlargement of the sympathetic ganglion or multiple ganglia? And, will the remedy in toto or in part come

from surgery of the sympathetic nervous system?

Pathology has become an integral part of the efficient surgery of the past and the present. The pathologist is an essential part of every efficient surgical pavilion.

The physiologist has taught us much but his work has heretofore been done in his own laboratory. It looks as if the surgeons were on the point of moving him to the operating room and making him a consultant of value in modern surgery equal to that of the pathologist.

Truly, this is a momentous step forward—this new or physiological era in surgery.

231 Faraon Street.

#### LYMPHATIC LEUKEMIA

George J. Busman and Arthur R. Woodburne, Pittsburgh (Journal A. M. A., Oct. 25, 1930), report a case with a generalized follicular papular eruption. The individual lesion was a discrete keratotic papule capped by a small horny spine and surrounded by a narrow erythematous margin. The histopathologic structure was that of miliary, submiliary and early conglomerate tuberculosis. There was an associated blood picture of a typical chronic low grade leukemia. The blood showed: hemoglobin, 80 per cent; erythrocytes, 5,650,000; white blood cells, 24,400 per cubic millimeter. The differential count was: polymorphonuclear neutrophils, 12 per cent; eosinophils, 1 per cent; small lymphocytes, 83 per cent; large lymphocytes, 3 per cent, and transitionals, 1 per cent. After roentgen-ray exposure of one skin unit in divided doses to the entire skin surface, there was a rapid decrease in leukocytosis and improvement in the relative percentages of white blood cells. During and after a total of twenty-four semiweekly, weekly or biweekly injections of spleen extract, the cutaneous and blood pictures returned to normal and have remained so after eighteen months' observation. Clinically the skin lesions were rather suggestive of a generalized lichen scrofulosorum. However, the absence of grouping, the age of the patient, the failure to demonstrate active or healed tuberculosis, the true tuberculosis histopathologic architecture, and a lymphatic leukocytosis out of proportion to that of general and cutaneous tuberculosis ruled out this diagnosis. The authors cannot prove whether the blood picture was the primary pathologic change and the skin expression secondary, or vice versa. In view of the fact that tuberculous structures are found not only in tuberculosis but also in many other infections, when allergic conditions are present, they believe that this case is one of a chronic, low grade, lymphatic leukemia in which the cutaneous eruption is that of a leukamid with a definite tuberculomatous architecture.

#### TO CLEANSE TOOTH BRUSH

The tooth brush should be washed at least once a week with soap and water and rinsed thoroughly in hot running water, advises *Hygeia*. Shake out the moisture and sprinkle with salt before hanging the brush to dry. It is well to have two brushes, alternating in use so that one may dry out and regain its bristle stiffness while the other is in use.



# THE JOURNAL

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JULY, 1931

## EDITORIALS

### JOSEPH WOODING LOVE, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL ASSOCIATION, 1931-1932

For President-Elect during 1931-1932 and President during 1932-1933, the Missouri State Medical Association at the Joplin session chose a member from the Ozark region, Dr. Joseph W. Love of the region's Queen City, the first member from Springfield elevated to the office of president of the Association since the late Dr. J. E. Tefft was president at the St. Louis meeting in 1872.

Dr. Love is of Scotch-Irish descent. His ancestors emigrated to the Ozark region of southwest Missouri from Tennessee in 1840 and settled in what was then Greene, later Wright, but now Webster County. His father was Thomas C. Love, a soldier in the Confederate Army under General John S. Marmaduke; his mother was Sarah Jane Rodgers Love, a daughter of Colonel R. W. Rodgers of Texas County who fought under General Sterling Price at the Battle of Wilson's Creek near Springfield, August 10, 1861.

Dr. Love was born in Webster County, Missouri, in 1867 and spent his boyhood on his father's farm. He was the oldest of seven children of whom four are living: Dr. Love; Thomas B. Love, a lawyer and politician of Dallas, Texas; Ralph M. Love, Weslaco, Texas, and Edgar P. Love, St. Louis. Dr. Love attended a neighborhood school, the old Mountain Dale Seminary near Seymour, until his family moved to Springfield in 1882 when he entered the Springfield High School from which he was graduated in 1886. During the year following his graduation from high school he "read medicine" under the preceptorship of the late Dr. Walter A. Camp, of Springfield, and pursued some premedical studies in chemistry and biology under Dr. Edward M. Shepard at Drury College, Springfield. In 1887 he

entered the College of Physicians and Surgeons of Columbia University, New York, receiving his medical degree from that institution in 1890. He completed a twelve-month internship in Christ Hospital, Jersey City, N. J., in 1891, was a student assistant under Dr. Herman Knapp in the New York Ophthalmic and Aural Institute for fifteen months and a clinical assistant in the Manhattan Eye, Ear and Throat Hospital, New York City, for six months.

Following a trip abroad with brief sojourns in London and Paris he returned to Springfield in 1894 where he engaged in private practice until 1901 when he went to the Philippine Islands as a contract surgeon in the United States Army. He was commissioned first lieutenant and later captain of the Medical Reserve Corps and was relieved from active duty with the army at his own request in 1912.

After a short course in diseases of the eye, ear, nose and throat at the New York Post-Graduate Medical School and Hospital in 1913, he returned to Springfield where he has since practiced his profession specializing in diseases of the eye, ear, nose and throat.

During the World War he held the commission of captain in the Medical Reserve Corps, inactive duty. In 1917 he was designated by the Surgeon General of the United States Army as chairman of a board of medical officers to examine and recommend applicants for commissions in the Medical Officers' Reserve Corps.

Dr. Love affiliated with organized medicine in Missouri early in his career and has taken an active part in medical association work. He was president of the Greene County Medical Society in 1919 and has been a delegate to the State medical meetings for the last ten years. He was first vice president of the State Association in 1923 and was elected chairman of the new Committee on Medical Economics of the Association in 1927 and reelected in 1930. He has served as corresponding secretary of the Southwest Missouri Medical Society for the last fifteen years. He is a Fellow of the American Medical Association.

Throughout his career he has manifested an interest in medical legislation in Missouri and has contributed in various ways to the solution of perplexing problems pending in the legislative counsels of the State Association.

Dr. Love was married in 1904 to Miss Sue Crenshaw, of Springfield, daughter of Mr. Lewis A. D. Crenshaw, a pioneer resident of Greene County. To them have been born two children, a son Lewis, and a daughter Betty, the latter being a member of the graduating class of Drury College, Springfield, this year.



JOSEPH WOODING LOVE, M.D.  
SPRINGFIELD  
President-Elect, 1931-1932



As a physician Dr. Love is eager and proficient in his practice; but he is also imbued with a similar eagerness and proficiency in regard to the medical profession as a whole. He has proved in his previous activities that he can assume responsibilities placed upon him and that he will execute with earnest enthusiasm and a keen understanding of the obligations that rest upon him the duties which are assigned to him. Dr. Love is highly respected and liked by all who know him, colleagues and laymen alike, and has earned the confidence and esteem of all physicians in the Association who have been brought in contact with him. Under the leadership of Dr. Love it will be facile for the members of the Association and the various committees to continue their work in the harmonious cooperation which has for long been manifest in the activities of the Association.

#### PHILADELPHIA SESSION OF THE A. M. A.

With forecasts pointing to an attendance of 5,000 at the eighty-second annual session of the American Medical Association held in Philadelphia June 8 to 12 the total registration quite unexpectedly rose to 7,006. Ninety Fellows registered from Missouri this being about fifty less than usually attend the meetings.

The scientific sessions teemed with informative data gathered by the leaders in the clinical field and indications of new knowledge emanating from the researchers and laboratorians. In the House of Delegates many important problems were studied, a conclusion reached upon some of them while others were referred to appropriate bodies for further investigation. The few idle moments in between the serious hours of labor were crowded with entertainments planned by the local committee on arrangements, the various special societies, the Philadelphia County Medical Society and the fraternities. The scientific exhibits were unusually extensive.

President William Gerry Morgan's address to the House of Delegates disclosed an astonishing familiarity not only with the problems that arise during the annual session but also with the stupendous amount of labor performed by the officers and personnel at the headquarters in Chicago. He paid tribute to the Secretary and General Manager, Dr. Olin West, the Editor, Dr. Morris Fishbein, the Director of the Bureau of Legal Medicine, Dr. W. C. Woodward, and advocated the early employment of understudies for these three officials in order that they themselves might not be prematurely depleted of their ability to serve, a catastrophe that might fall upon us if the

tremendous burden they carry be not lightened. He spoke of the suggestion which has been voiced here and there that the headquarters of the Association be moved to Washington, D. C. In forcible language Dr. Morgan gave conclusive reasons for discountenancing any serious consideration of that proposition. He did suggest that it might not be unwise to establish a permanent office at Washington for the director of the Bureau of Legal Medicine, at least during the periods when the Congress is in session.

Dr. Edward Starr Judd in the President-Elect's address said the meaning of medical ethics should be made known to all students during their medical school days; the Council on Medical Education and Hospitals should be given every opportunity to keep in close contact with the problems of medical education and hospitals, and the close association between the Council and the medical schools now being maintained should be continued. He counseled that the Association must be the leader in preventive medicine and public health activities; that public health and preventive medicine are the most discussed subjects in medicine today and our influence and leadership in this work must be retained. He recommended to the House of Delegates and to the Committee on Scientific Assembly that they encourage local, county and district clinical meetings, the American Medical Association to foster the promotion of these meetings and the county and state associations to supervise them.

An important proposition was introduced by the delegates from Michigan pertaining to a demand by Michigan physicians to receive a fee of not less than \$2.00 from insurance companies for filling in claim proofs for health and accident insurance companies. The Michigan State Medical Association adopted a resolution approving this proposition but the insurance companies demurred on the ground that Michigan represented only a small portion of the nation and should not undertake a project affecting the policy of all insurance companies in the United States. A resolution introduced by Dr. J. D. Brook, of Michigan, made the proposal applicable to every physician in the United States. The resolution was referred to the Bureau on Medical Economics for study and report at the next annual session of the Association.

The House of Delegates approved recommendations of the Council on Medical Education and Hospitals as follows:

That acceptable medical colleges should assist all of their students in obtaining intern training and after the academic year 1933-1934 have each annual announcement contain a

record of the hospital training of the last graduating class; classify foreign medical schools where students of American citizenship are in attendance along the lines applied to American medical colleges in order to facilitate licensing the graduates of these schools in this country; investigate the discrimination in various foreign countries that seems to be practiced against graduates of American medical colleges relative to licensure by reciprocity; that the investigation of "repeaters" among medical students be continued to the end that unqualified students may not be graduated so that commercially tainted medical schools shall be disorganized; that a commission on qualifications for specialists be formed to define the classification of specialists and consider legislation on special licenses for physicians wishing to qualify and practice as specialists; that the House of Delegates petition the Congress of the United States and the American Legion to abandon the policy of rendering medical and hospital benefits to veterans of the World War for nonservice disabilities. The House of Delegates went on record as being opposed to giving medical and hospital aid to veterans for injuries or diseases of nonservice origin.

A proposition was introduced by Dr. M. E. Rehlfuss, Philadelphia, to establish two new sections, one, a section on gastro-enterology, the other, a section on proctology, in the place of the present Section on Gastro-Enterology and Proctology. Action on this proposition will be taken at the 1932 session.

Dr. E. H. Cary, Dallas, Texas, dean emeritus of Baylor University College of Medicine, was chosen President-Elect at the closing session of the House of Delegates, he being the only candidate proposed. Other officers elected were: Vice President, Dr. George Yeager, Philadelphia; member Board of Trustees, Dr. Thomas S. Cullen, Baltimore (reelected); Secretary, Dr. Olin West, Chicago (reelected); Treasurer, Dr. Austin A. Hayden, Chicago (reelected); Speaker of the House of Delegates, Dr. F. C. Warnshuis, Grand Rapids (reelected); Vice Speaker of the House of Delegates, Dr. A. E. Bulson, Indianapolis (reelected).

The eighty-third session will be held in New Orleans in 1932.

Perhaps the most outstanding contribution of advance in the treatment of diseases during the last year was the paper by Drs. C. H. Greene and L. G. Rowntree, Rochester, Minnesota, on the treatment of Addison's disease with the cortical hormone isolated by Swingle and Pfiffner from the cortex of the adrenal gland. Addison's disease is generally regarded as speedily fatal there being until now no

treatment that promised relief. Greene and Rowntree administered the hormone in twenty cases of Addison's disease and reported that all except four cases showed remarkable improvement, the four cases not relieved being so far advanced that they died shortly after treatment was begun. It is estimated that the present cost of maintaining a patient afflicted with Addison's disease is about \$3,000 a year. If the new method of treatment proves effective this cost will be reduced to \$500. During the discussion on this report it developed that another physician, Dr. Frank Alexander Hartmann, head of the department of physiology at the University of Buffalo, had isolated a similar if not an identical substance from the adrenals. Dr. Hartmann did not attend the meeting but his work was mentioned by Dr. Clayton Wellington Greene, Buffalo.

Dr. Walter Freeman, Washington, D. C., suggested that dementia praecox may be a deficiency disease, the brain becoming unable to use the oxygen it requires. Dr. Roy Graham Hoskins, Boston, expressed the belief that dementia praecox affects so many people in the United States that all the hospitals in the country could not contain them; he reported counting 140,000 in mental hospitals alone.

Dr. George W. Crile, Cleveland, said the frontal lobe of the brain is the contributing cause of stomach ulcer, exophthalmic goiter, irritable heart and possibly diabetes.

If the conclusions of Drs. Alfred F. Hess and J. M. Lewis, New York, are correct about half the children whom doctors are called upon to examine show some signs of rickets. Advanced cases, they said, had big, fatty heads; loose, flabby skin; pinched, chicken breast; puffed belly, bow legs, and little lumps on the joints, especially the wrists and ankles. The preventives recommended were outdoor play, artificial sun lamps, codliver oil, animal fats and other foods containing vitamin D, cow's milk, irradiated yeast or viosterol.

Dr. W. Ambrose McGee, Richmond, Virginia, characterized whooping cough as a disease much more dreadful than is ordinarily realized, the danger lying in the possibility of ruptured blood vessels, muscle tearing and secondary infection. The fundamental treatment is to quiet the spasms of coughing by sedatives, paregoric, codeine, heroin, antipyrine, chloral hydrate, and benzyl benzoate, carefully prescribed.

Dr. Morris Fishbein, Chicago, chairman of the committee on foods, discussed foods and the work of the committee.

Epidermophytosis, "athlete's foot," was described by Dr. Fred D. Weidman, Philadelphia, as a fungus disease which has increased 400 per



cent since the World War and for which there are numerous treatments but as yet no cure.

An operation that saves some victims of bichloride of mercury poisoning was reported by Dr. Samuel S. Berger, Cleveland. After studying 163 cases of mercury poisoning he and his associates found that most of the patients who lived more than 24 hours died of a gangrenous condition of the lower intestine. They devised an operation, cecostomy, whereby the cecum was constantly flushed and the poison thus prevented from reaching the large intestine in those cases which reached them before the large intestine had been invaded by the poison.

"Always look into the mental life of the patient in treating heart disease," said Dr. E. Libman, Columbia University, New York. A tired brain means a tired heart, he declared.

Insulin plus proper diet, plus avoidance of obesity was the formula given by Dr. E. P. Joslin, Boston, for enabling diabetics to live a normal span of life. He estimated that 25 years ago one out of every five patients died within a year but at present only one out of twenty-five dies within a year.

Dr. Merrill Clary Sosman, Boston, reported having found that the roentgen ray will relieve and sometimes cure xanthomatosis, a condition which makes children squatty and pop-eyed.

Eighteen Missouri Fellows appeared on the scientific program, twelve contributing nine addresses and six opening or taking part in discussions. Those who delivered addresses and the titles of the papers follow:

Dr. E. C. Padgett, Kansas City, "The Full-Thickness Skin Graft in the Correction of Soft Tissue Deformities."

Dr. Frederick V. Emmert, St. Louis, "The Discovery of Cancer of the Uterus in Its Earlier Stages."

Dr. W. H. Luedde, St. Louis, "The Mechanism of Accommodation: Facts and Fancies."

Dr. Alfred J. Cone, St. Louis, "Incidence of Acute Otitis Media in Infants and Young Children During 1930-1931; Variations in the Clinical Picture."

Edgar Allen, Ph.D., Columbia, "The Physiologic Regulation of Ovarian Activity."

Dr. Archie D. Carr, St. Louis, "The Neurologic Syndromes Associated With Hypoglycemia."

Drs. Martin F. Engman, L. H. Jorstad and Martin F. Engman, Jr., St. Louis, "Experimental Study of Early Syphilis With Nonspecific Therapies."

Drs. Bransford Lewis and Grayson Carroll, St. Louis, "Regurgitation Renal Colic."

Dr. Horace W. Soper, St. Louis, "Treatment of Gastric Hemorrhage."

The following took part in the discussions: Drs. Edward J. Curran, Kansas City; John Green, Jr., St. Louis; Harvey J. Howard, St. Louis; A. N. Lemoine, Kansas City; A. F. Hartmann, St. Louis, and W. W. Duke, Kansas City.

#### AMERICAN MEDICAL DIRECTORY

The American Medical Directory for 1931, the twelfth edition, published by the American Medical Association, lists 172,383 names including all licensed medical practitioners in the United States, its dependencies, Canada and Newfoundland, and American licensees practicing or studying in foreign countries. Since the eleventh edition, 11,935 names have been added and 6,709 names have been withdrawn because of death. The total listed in the eleventh edition was 168,201 showing an increase in the twelfth edition of 4,182.

The volume is divided into three sections. The first section contains a great deal of miscellaneous information including medical societies, colleges, libraries, journals, hospitals approved for internship, hospitals approved for residencies in specialties, approved clinical laboratories, members of the National Board of Medical Examiners, American Board for Ophthalmic Examination, American Board of Otolaryngology and American Board of Obstetrics and Gynecology, officers in government medical service, and members of special societies. The second division lists physicians and hospitals alphabetically by state, city and name in the United States and the dependencies (Alaska, Canal Zone, Hawaii, Philippine Islands, Porto Rico, Guam, Samoa, and the Virgin Islands) and in Canada, Newfoundland, Labrador, Yukon and the Northwest Territories, and names of American physicians practicing in foreign countries. The third section furnishes a very complete index arranged alphabetically by name of the physician with a separate index of physicians whose addresses were unknown at the time of going to press.

The volume includes a remarkable amount of data; but no less remarkable is the accuracy with which the data is compiled and presented. The directory is published in order that the members of the organization may have reliable information on the status of every physician in the country and has become the standard reference for such data. The production of the directory is a profitless undertaking from a financial standpoint; as a matter of fact it is a drain on the treasury of the American Medical Association. In the service it renders physicians, however, and in the appreciation of the profession for this reliable information, the assets of the directory are valuable.

## MICHIGAN PHYSICIANS HONORED BY LEGISLATURE

An unusual tribute was paid two Michigan physicians and a doctor of science at a session of the legislature of the State of Michigan, Lansing, April 14, 1931. The physicians who were honored were Dr. Frederick G. Novy, Ann Arbor, and Dr. Reuben L. Kahn, Lansing. The scientist was Prof. Moses Gomberg, D.Sc., Ann Arbor. The tribute was paid to them in recognition of their outstanding contributions to science.

The event was the outcome of a suggestion offered by Dr. J. H. Upjohn, a member of the senate from Kalamazoo. "The idea immediately bore fruit," said Governor Wilbur M. Brucker in opening the exercises of the joint meeting, "gained ground and became extremely popular; members of the house and senate in large numbers expressed their approval and spontaneously this grew in the house and senate until the executive office was approached on the matter and approval was readily given."

Finding his suggestion generously and generally approved by Governor Brucker and members of the house and senate, Dr. Upjohn introduced a resolution in the senate which was concurred in by the house that a joint session of the legislature be held for the purpose of honoring some of the scientists of Michigan who had contributed largely to their day and generation.

Dr. Novy was prominently associated with the establishment of the first laboratory for water analysis in Michigan and with the first Pasteur Institute in this country for the treatment of rabies; he has been active throughout his career in local, national and international medical activities. Dr. Kahn began his residence and work in Michigan when the state department of health was reorganized in 1919 and has continuously been connected with that department. One of his outstanding achievements was the development of the Kahn test for syphilis. Prof. Gomberg, D.Sc., is director of the chemical laboratory in the University of Michigan and is eminent for his research work in chemistry.

Each of the men honored was given an opportunity to address the joint session and they told of the work they had performed in the pursuit of knowledge. Governor Brucker presided and many distinguished citizens of Michigan attended the session. Each of the guests of honor was given an engrossed copy of resolutions adopted at the joint session extolling the recipient and his achievements.

## NEWS NOTES

Dr. Walter E. Hennerich, St. Louis, senior instructor in surgery at St. Louis University School of Medicine, was appointed assistant police surgeon of St. Louis by the board of police commissioners June 9 to succeed Dr. Louis T. Pim who died recently.

The seventeenth annual Tuberculosis Day ball game will be held at Sportsman's Park, St. Louis, July 22, under the auspices of the Tuberculosis and Health Society of St. Louis to whom the proceeds of the game will go. The Cardinals will play Philadelphia, and drill teams, drum corps and novelty acts will be added features.

Dr. Joseph Brennemann, Chicago, was the guest of the St. Louis Medical Society at the meeting held under the auspices of the St. Louis Pediatric Society on May 26. Dr. Brennemann delivered an address on "Observations on the Treatment of Empyema With Special Reference to the Role of Aspiration." Dr. Eugene F. McEnery, Chicago, opened the discussion.

The federal radio commission refused to renew the license of station KTNT operated by Norman Baker at Muscatine, Iowa, June 5, and the station went off the air at midnight of that day. Baker and the commission have been engaged in a long controversy following protests made by the American Medical Association and the Iowa State Medical Association against the broadcasting of purported results of cancer treatment in the institution which Baker conducts in Muscatine. In its decision the commission said: "Upon the whole, the case resolves itself to this: This commission holds no brief for the medical associations and other parties whom Mr. Baker does not like. Their alleged sins may be at times of public importance to be called to the attention of the public over the air in the right way. But this record discloses that Mr. Baker does not do so in any high-minded way. It shows that he continually and erratically over the air rides a personal hobby, his cancer cure ideas and his likes and dislikes of certain persons and things. Surely his infliction of all this on the listeners is not the proper use of a broadcasting license. Many of his utterances are vulgar if not indeed indecent. Assuredly, they are not uplifting or entertaining. Though we may not censor it is our duty to see that broadcasting licenses do not afford mere personal organs, and also to see that a standard of refinement fitting our day and generation is maintained."



Dr. William H. Mook, St. Louis, assistant professor of clinical dermatology, Washington University School of Medicine, was elected president of the American Dermatological Association at the meeting of the society held in Toronto June 15 to 17.

Dr. Sam Roberts, Kansas City, entertained the members of the American Board of Otolaryngology by a tour of Kansas City and a dinner at his home June 2. The board members were enroute from Los Angeles, where they had completed examinations of eighty applicants for certificates, to Philadelphia to conduct further examinations.

Dr. Carl Barck, St. Louis, professor emeritus of ophthalmology in St. Louis University School of Medicine, was the recipient of the degree of golden doctorate in medicine from the University of Freiburg on June 2. The presentation was made in St. Louis by the Honorable George Ahrens, St. Louis, German consul, acting as the representative of the Rector of Freiburg, during the commencement exercises of St. Louis University. Dr. Barck located in St. Louis the year following his graduation from the University of Freiburg in 1881 and began his practice specializing in diseases of the eye. Forty years ago he joined the faculty of the Marion-Sims College of Medicine in St. Louis as a teacher of ophthalmology and when the school was absorbed by St. Louis University he remained on the faculty. In 1911 he was made head of the department of ophthalmology.

The sixteenth annual report of the National Society for the Prevention of Blindness shows that the incidence of new cases of ophthalmia neonatorum in schools for the blind in the United States is 9.3 per cent, a slight reduction from last year. During 1930 ninety-nine demonstrations of eye testing for preschool children were conducted in 71 cities in 10 states of the United States and material and methods of eye testing were demonstrated before the Mexican Congress on Prevention of Blindness in Mexico City November 1 to 5. Sixteen additional sight-saving classes were established during the year bringing the total to 366. As projects for the ensuing year the society is contemplating research in the field of reading in relation to the eye load, simplification and standardization of the classification of the causes of blindness, and the training of workers in eye social service through cooperation with the Massachusetts Eye and Ear Infirmary, Boston.

Dr. W. T. Coughlin, St. Louis, was the guest of the St. Louis University Dental Alumni Association on June 4 and delivered an address on "Cooperation Between Dentist and Surgeon in the Treatment of Surgical Conditions About the Mouth and Nose."

Dr. Paul S. McKibben, Los Angeles, chairman of the medical faculty of the University of Southern California School of Medicine, has announced that third-year medical work will be added to the curriculum of the school beginning in September, 1931. The school of medicine was opened for the instruction of students in 1928 and during that year first-year work only was offered. In 1929-1930 the work of the second year was added.

In order to inform the public of the danger of carbon monoxide occurring in gases from automobile exhausts and city mains, representatives of the bureau of mines of the United States Department of Commerce have been showing a motion film entitled "Carbon Monoxide, the Unseen Danger." It is estimated that more than 550,000 persons have viewed the picture in the last eighteen months. The film is furnished free by the Pittsburgh Experiment Station of the United States Bureau of Mines, Pittsburgh, Pa.

Four promotions to full professorships in the Washington University School of Medicine were among the appointments announced June 3 by Chancellor George R. Throop of the university. Dr. J. Albert Key was appointed professor of clinical orthopedic surgery, Dr. Lawrence T. Post and Dr. Meyer Wiener, professors of clinical ophthalmology, and Dr. Albert E. Taussig, professor of clinical medicine.

Other advancements announced were Gordon H. Scott, associate professor of cytology; Dr. Drew W. Luten, associate professor of clinical medicine; Dr. Joseph W. Larimore, associate professor of clinical medicine; Donald Hetler, assistant professor of bacteriology and immunology and of public health; Dr. George Hourn, assistant professor of clinical otolaryngology; Helen Tredway Graham, assistant professor of pharmacology; Dr. James B. Costen, instructor in clinical otolaryngology; Dr. Henry S. Brookes, Jr., instructor in clinical surgery; Dr. Oscar C. Zink, instructor in clinical radiology; and Drs. W. M. Robertson, J. Hoy Sanford, V. Rogers Deakin and Otto J. Wilhelmi, instructors in clinical genitourinary surgery.

Dr. Andy Hall, Illinois state health director, has announced that babies entered in the Better Baby Conference of the Illinois State Fair at Springfield, will be penalized ten points if they have not been vaccinated against smallpox and immunized against diphtheria.

A series of clinics for crippled children were held by the Missouri Crippled Children's Service of the University of Missouri at different towns in the State beginning June 24. The clinics were conducted in Mountain Grove, Branson, Ozark, Springfield, Memphis, Kahoka, Bethany, New Madrid and Lebanon.

Gifts to Washington University during the last year aggregating \$1,313,364 were listed at the university's seventieth commencement, June 9. Among gifts to the school of medicine which were made public for the first time were: \$10,000 for the building account and equipment of McMillan Eye, Ear, Nose and Throat Hospital by Mrs. J. F. Shoemaker, St. Louis, who had previously given \$50,000 toward the building; \$5,000 for a fund in fundamental sciences in the medical school given by Mr. Edwin H. Steedman, St. Louis; \$1,000 for seats in the amphitheater building of Barnes Hospital by Mrs. Carrie Scott Johnson, St. Louis; \$1,500 for a course in public health nursing in the next scholastic year by Mr. and Mrs. George O. Carpenter, St. Louis; \$1,000 for a fellowship in bacteriology and \$1,800 for a fellowship in pediatrics by the Eli Lilly Co., Indianapolis; \$1,200 for a fellowship in neurological surgery given anonymously through Dr. Ernest Sachs; \$4,000 for research in dental problems in the pediatric department by the Health Products Corporation of Newark, N. J.; \$3,500 for research work on the sinuses by the Chemical Foundation, New York; and \$14,762 for expenses of the ophthalmology department in 1930-1931 by the General Education Board.

Gifts to the school which were made known during the year include \$50,000 additional for the Mallinckrodt radiology building and \$3,000 for equipment given by the Edward Mallinckrodt estate; \$50,000 for building and equipping an auditorium in McMillan Eye, Ear, Nose and Throat Hospital by Mrs. Henry W. Elliott, St. Louis; \$12,500 for building and furnishing the conference and directors' room in McMillan Hospital and Oscar Johnson Institute by Mrs. Isabel Holmes Keech, St. Louis; and \$20,000 for equipping the urological clinic in Mallinckrodt Radiology Institute given by Mr. John F. Queeny and Mr. Edgar M. Queeny, St. Louis.

Dr. Newell R. Zeigler, formerly a faculty member of the University of Minnesota, Minneapolis, has been named associate professor of bacteriology in the University of Missouri School of Medicine and will teach bacteriology and preventive medicine. Dr. Harry H. Charlton, Columbia, was promoted from associate professor to professor of anatomy in the school of medicine.

Two St. Louis physicians were honored at the annual meeting of the American Gynecological Society held in Hot Springs, Virginia, May 21, by being elected president and secretary of the organization. Dr. George Gellhorn, director of the department of gynecology and obstetrics of St. Louis University School of Medicine, was elected president and Dr. Otto H. Schwarz, professor of obstetrics and gynecology at Washington University School of Medicine and head of the St. Louis Maternity Hospital, was elected secretary.

The Kansas City Southwest Clinical Society will hold the July clinic at St. Mary's Hospital, Kansas City, Mo., July 14, beginning at 8 o'clock in the morning. The first half of the morning will be devoted to operative clinics conducted by members of the hospital staff in general surgery, urology, ophthalmology and otolaryngology, and ward walks of medical cases. From 10 o'clock until adjournment at noon three distinguished guests will deliver addresses on injuries of the head, chest and spine. The speakers and subjects follow:

Dr. C. W. Hopkins, Chicago, will speak on "Head Injuries: Differential Diagnosis and Treatment." Dr. Hopkins is chief surgeon of the Chicago and North Western Railway and enjoys an enviable reputation for his work in the study of head injuries.

"Chest Injuries: Differential Diagnosis and Treatment," will be discussed by Dr. O. B. Zeinert, St. Louis, chief surgeon of the Missouri Pacific Lines. Dr. Zeinert has done much original work in the treatment of chest injuries.

Dr. R. A. Woolsey, St. Louis, chief surgeon of the Frisco Lines, who is a frequent contributor to medical literature on traumatic injuries of the spine, will address the society on "Injuries of the Spine: Differential Diagnosis and Treatment."

Luncheon will be served by the Sisters at St. Mary's Hospital. After luncheon those guests who desire to play golf will be taken to the Blue Hills Country Club.

The night programs of the Jackson County and Wyandotte County medical societies have been discontinued for the summer months.



Eight sophomore students in the school of medicine of the University of Missouri will continue at the university as the first students in the junior curriculum to be reinaugurated for the 1931-1932 scholastic year. Other students received placements in Washington, Harvard, Northwestern and Duke universities and the Medical College of Virginia.

The Julius Rosenwald Fund gave a report May 31 of a year's experiment in reducing costs of hospital treatment conducted in two institutions in Keokuk, Iowa. The plan which was discontinued in February provided a lowered schedule of hospital and physicians' cost, the money being paid to the hospital which turned over the physicians' share. Bills could be paid on the installment plan if proper credit was established and the hospital was guaranteed against loss due to idle beds and all parties were insured against bad debts. The plan was discontinued because of the opposition of a group of physicians who urged four objections: That patients treated could have paid more; that the plan served the interest of a small group of physicians as against the others; that it was unfair to physicians in neighboring towns whose possible patients went to Keokuk for the lower rates, and that it infringed on the physicians' prerogatives by having rates fixed.

The memory of Dr. William Beaumont, pioneer physiologist of the United States who practiced in St. Louis from 1835 until his death in 1853, is again being honored, the State Medical Society of Wisconsin planning to erect a tablet in his honor. This will be the fifth tablet erected in Dr. Beaumont's memory, the others being in St. Louis where Beaumont High School and Beaumont Street are named for him; at Lebanon, Conn., his birth place; Fort Mackinac, Mich., and Plattsburg, N. Y., where he conducted experiments. Dr. Beaumont came to St. Louis as an army physician stationed at Jefferson Barracks. About 1840 he resigned his commission in the army and lived near St. Louis, later moving into the city. He took an active interest in medical affairs being the presiding officer of the Missouri Medical Society, the predecessor of the St. Louis Medical Society, in 1841. Beaumont Hospital Medical College, later St. Louis University School of Medicine, was named for him when it was organized in 1886.

The latest memorial to Dr. Beaumont was suggested by Dr. William Snow Miller, emeritus professor of anatomy at the University of Wisconsin, in recognition of research work on digestion of food conducted by Dr. Beaumont while stationed as an army surgeon at Fort Crawford, Wisconsin. Dr. Beaumont was called upon to attend a French voyageur who

was accidentally shot in the upper left abdomen. The wound remained open offering opportunity to observe the action of gastric juice on food and Dr. Beaumont began his experimental study of the digestion of foods. When he later published his experiments they were accorded the rank of being the first great studies of digestion in the history of medicine.

The tablet will be placed by the medical society on Highway 18 near the site of new Fort Crawford, Wisconsin.

Dr. Arthur W. Proetz, St. Louis, assistant professor of otolaryngology, Washington University School of Medicine, was awarded the \$500 Casselberry prize of the American Laryngological Association for outstanding accomplishments in his field. The award was made at the meeting of the association held in Atlantic City June 15 to 17. The prize was given to Dr. Proetz in recognition of his work on the displacement method of sinus diagnosis and treatment and research work done by him at the Oscar Johnson Institute, St. Louis, which he submitted as a thesis to the American Laryngological Association. The manuscript on the displacement method of sinus diagnosis and treatment has since been published in book form under that title. The Casselberry award was established by the late Dr. William E. Casselberry, of Chicago, ten years ago when he devised a fund to the American Laryngological Association the interest to be awarded in sums of \$500 or less for outstanding work in laryngology and rhinology. Four other awards have been made previous to the one given to Dr. Proetz this year.

The corner stone of the Firmin Desloge Memorial Hospital, 1325 South Grand Boulevard, St. Louis, an adjunct of the St. Louis University School of Medicine, was laid June 2 as a part of the one hundred and thirteenth commencement exercise of the university. The hospital was made possible by a \$1,000,000 bequeath for that purpose in the will of the late Firmin Desloge. The institution is planned to accommodate patients of moderate means and approximately a third of the 300 beds will be free. The hospital will be administered by the St. Louis University School of Medicine and the Sisters of St. Mary. Mission work of the Sisters of St. Mary will be expanded by converting the old St. Mary's Infirmary into a hospital for Negroes and a school of nursing to train educated Negro women for work among their own race will be organized.

Archbishop John J. Glennon, St. Louis, presided at the ceremonies and laid the corner stone, saying that the Firmin Desloge Memorial Hospital was dedicated to charity for the poor, light for the ignorant and help for all. Ad-

dresses were delivered by the Very Rev. Robert S. Johnston, president of the university; Rev. Mother M. Concordia, Mother General of the Sisters of St. Mary, and Dr. Charles H. Neilson, associate dean of the school of medicine. Dr. Neilson spoke of the advantages of having a teaching hospital saying it would expand the facilities for research for which the school of medicine is already noted.

The medical and surgical staffs of St. Joseph Hospital, St. Joseph, held a clinical-pathological conference May 25 at the institution. Such conferences were begun about a year ago in order that the medical profession of St. Joseph and the surrounding territory might benefit by the clinical material available in the hospital.

Dr. A. B. McGlothlan, St. Joseph, was chairman of the program which was presented by four members of the staff of the institution. Dr. J. I. Byrne delivered discussions on hernia, inguinal and strangulated; pseudomyxoma of the peritoneum; goiter, adenomatous and hyperthyroidism; and cyst of the thyroid gland. A resumé of all cases of acute pancreatitis treated in the hospital in the last two years was given by Dr. F. X. Hartigan in a discussion of "Acute Pancreatitis." Dr. Caryl Potter discussed osteomyelitis, chronic sinusitis, sarcoma of the spleen, and cirrhosis of the liver. "Carcinoma of the Uterus" was discussed by Dr. F. G. Thompson, Jr., and an unusual symptom-complex described.

Staff officers for the ensuing year were elected at the last monthly staff meeting as follows: President, Dr. Caryl Potter; vice president, Dr. W. R. Moore; secretary-treasurer, Dr. G. A. Lau; recorder, Dr. L. H. Fuson; executive committee: Sister Chrysostom, superintendent of the hospital, Dr. Caryl Potter, Dr. G. A. Lau, Dr. L. H. Fuson, Dr. F. G. Thompson, Jr., Dr. J. I. Byrne and Dr. F. X. Hartigan.

Dr. Francis Reder, St. Louis, will attend the III Panamerican Medical Congress to be held in the City of Mexico July 26 to 31 under the auspices of the department of public health of the Government of Mexico. Dr. Reder will deliver an address on "The Value of Water at High Temperature in the Treatment of Cavernous and Plexiform Angiomata."

The congress is purposed to promote and maintain an intimate and harmonious relation among the medical men of the New World. The State Department of the United States has announced that our Government will participate in this congress and has designated several American physicians as delegates.

The congress will be divided into the follow-

ing sections: First, international medical relations; second, general medicine, tropical medicine and hygiene, pediatrics, dermatology, neurology and psychiatry; third, general surgery, ophthalmology, eye, ear, nose and throat, orthopedic surgery, genito-urinary surgery, and obstetrics and gynecology. The papers must be unpublished and original, deal with subjects relating to the medical profession and be written in English, Spanish, French or Portuguese.

The following articles have been accepted for New and Nonofficial Remedies:

Ciba Company, Inc.

Ampules Solution of Nupercaine—Ciba, 25 c.c., 1:1000

Hixson Laboratories, Inc.

Rabies Vaccine (Hixson)

Lederle Laboratories, Inc.

Concentrated Pollen Antigen (Lederle)  
Ragweed Combined

Diphtheria Toxin for Schick Test in Peptone Solution

Eli Lilly & Co.

Diphtheria Toxoid—Lilly

Syrup No. 112 Ephedrine Hydrochloride

Chas. Pfizer & Co.

Calcium Gluconate—Pfizer

Spicer & Co.

Quiniobine

Quiniobine Ampules, 2 c.c.

E. R. Squibb & Sons

Grasses Combined Pollen Allergen Solution—Squibb

Cottonwood Pollen Allergen Solution—Squibb

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

Hixson Laboratories, Inc.

Diphtheria Antitoxin

Tetanus Antitoxin

The St. Louis Medical Society at a meeting June 2 endorsed the proposed \$15,000,000 bond issue for the extension of St. Louis' eleemosynary facilities. The bond issue was recommended several months ago by the public welfare committee of the St. Louis board of aldermen but no action was taken. The recommendation for endorsement by the society was presented by the health and public instruction committee composed of Drs. W. E. Leighton, Jerome Cook and Frank J. V. Krebs, and was unanimously accepted.

Dr. Curtis H. Lohr, hospital commissioner of St. Louis, gave an illustrated lecture before the society showing the conditions in various institutions. The slides revealed the necessity



of placing beds in corridors and converting into sleeping quarters rooms that were originally designed for other purposes. The report of the committee of the St. Louis Medical Society pointed out that the frame buildings at Koch Hospital are unsuited for hospitalization of tuberculosis patients and that the fire hazard is great. Rooms originally intended for recreational purposes at the City Sanitarium are now utilized for sleeping quarters for patients and Negro feeble-minded children are housed with adult psychotic patients. Additional facilities at the City Infirmary would permit many chronic and incurable patients to be moved from the general hospitals and thus relieve the overcrowded conditions at the City Hospital.

The report of the health and public instruction committee approved a plan to build a new contagious disease hospital in connection with the present isolation group in order to utilize the present hospital as a clearing house for tuberculosis patients prior to their transfer to Koch Hospital as well as hospitalization of terminal cases of tuberculosis.

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## OBITUARY

### GEORGE RICHTER, M.D.

Dr. George Richter, St. Louis, a graduate of the University of Giessen, Germany, 1874, died at his home March 12, 1931, of cerebral hemorrhage following an illness of several months. He was 78 years of age.

Dr. Richter was born in Leipzig, Germany, and received his preliminary and medical education in that country, studying at the universities of Leipzig, Tübingen and Bonn. After practicing several years Dr. Richter visited in the United States, St. Louis being one of the cities in his itinerary. He was interested in making his home in this country and during this visit decided upon St. Louis as the city in which to build his future practice.

Dr. Richter always maintained his interest in German-American activities, but ever paramount was his interest in professional and friendly service to any who needed it. He was of the old school of physicians, the family physician who saw not a patient but a friend in need of medical aid. He specialized in internal medicine but administered to all and never did a case become a series of charts and reports but remained a person to whom he could administer kindly.

Dr. Richter earned the love and esteem of his colleagues as well as his patients during his long years of practice in St. Louis. He was elected an honor member of the St. Louis

Medical Society in 1922 and in November, 1929, he was one of thirteen St. Louis physicians who were honored at a golden jubilee given by the St. Louis Medical Society. Dr. Richter at that time had been in active practice for fifty-five years. He was a member of the State Medical Association and a Fellow of the American Medical Association.

During his early practice, Dr. Richter was a frequent lecturer at the Beaumont Hospital Medical College, now St. Louis University School of Medicine.

Dr. Richter was a man called friend by many and a physician beloved by his colleagues. He will remain in the memory of all who knew him as an esteemed citizen and a man of high ideals and kindly manner.

He is survived by a son and a daughter.

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### ST. ELMO SANDERS, M.D.

Dr. St. Elmo Sanders, Kansas City, a graduate of the University Medical College of Kansas City, 1900, died of pneumonia at his home June 1 after an illness of three weeks. He was 58 years old.

Dr. Sanders was born in Greene County, Indiana, and moved to Kansas City forty years ago. After completing his medical studies he practiced in Kansas City and in 1905 was appointed city physician, a position which he filled for one and one half terms. At a time when little was known or cared about public hygiene he fought vigorously for vaccination against smallpox and such health measures as individual drinking cups in the public schools and he insisted on the adoption of these and other safeguards.

Following his service as city physician he became professor of anatomy in the University Medical College of Kansas City and remained secretary and a director of the institution until the time of his death although the school closed its doors as a teaching institution in 1913.

He was one of the founders of Grace Hospital, later the Evangelical Hospital, and was chief of the staff of the institution at the time of his death.

Dr. Sanders was active in civic as well as medical affairs. By his death the community suffers the loss of a good citizen and the medical profession a pioneer in health and an earnest supporter of organized medical activities. He was a member of the Jackson County Medical Society, the State Medical Association and a Fellow of the American Medical Association.

He is survived by his widow, Mrs. Edith J. Sanders, his mother, a sister and three brothers.

### ALBERT L. GRAY, M.D.

Dr. Albert L. Gray, St. Joseph, a graduate of the Medical College of Ohio, Cincinnati, 1884, died of heart disease at his home June 8 after an illness of two years. He had been seriously ill only three weeks. He was 74 years of age.

Dr. Gray was born in Highland County, Ohio, and received his preliminary education at Lebanon, Ohio. For a short time he practiced in Ohio and in 1886 moved to Tarkio, Missouri, and the following year to St. Louis where he practiced until he moved to St. Joseph in 1900. Shortly after locating in St. Joseph he studied in Bellevue Hospital Medical College in New York.

Dr. Gray specialized in obstetrics and limited his practice largely to that field. During his thirty years of practice in St. Joseph and north-west Missouri he delivered 5,996 babies. In many instances he attended two generations and had attended one family for three generations. He continued actively with his profession until his illness three weeks preceding his death. He taught in the Ensworth Medical College and at various times served on all the hospital staffs in St. Joseph.

He was a member of the Buchanan County Medical Society, and the State Medical Association.

Dr. Gray combined the old-time physician who was a friend of the family with the modern specialist thoroughly versed in his field. He was loved as a friend and respected as a physician.

He is survived by his widow, Mrs. Mattie E. Gray, a son and a sister.

### AUGUST ELLERSIECK, M.D.

Dr. August Ellersieck, St. Louis, a graduate of the National University of Arts and Sciences Medical Department, St. Louis, 1912, died June 2, after an illness of six months, aged 57.

Dr. Ellersieck was born in St. Louis and received his education in that city. Following the completion of his medical studies he began his practice in north St. Louis and spent his entire professional life of eighteen years in that vicinity. Dr. Ellersieck was a faithful physician and was highly esteemed by his colleagues, patients and friends and only the release from his illness alleviates the sorrow of his death. He was a member of the St. Louis Medical Society, the State Medical Association and a Fellow of the American Medical Association.

Dr. Ellersieck is survived by a son and a daughter, both of St. Louis.

### EUSTATHIUS CHANCELLOR, M.D.

Dr. Eustathius Chancellor, St. Louis, a graduate of the University of Virginia, Department of Medicine, Charlottesville, Virginia, 1876, died of heart disease, June 3, at Barnes Hospital, St. Louis, after an illness of two months. He was 77 years of age.

Dr. Chancellor was born in Chancellorsville, Virginia, the son of a physician, and began his education in schools in his native county. After completing his medical course in the University of Virginia he studied at the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, for a year, then practiced with his father. He moved to St. Louis in 1880 and continued actively in the practice of medicine until his retirement five years ago. He was one of the founders of the Beaumont Hospital Medical College, now St. Louis University School of Medicine. He became interested in medicomilitary activities in 1883 and was medical director of the First Brigade of the Missouri National Guard in 1891. He was a charter member of the Association of Military Surgeons.

Dr. Chancellor served as secretary of the St. Louis Medical Society for several years. In 1896 he represented the society at the Pan-American Medical Congress in Mexico City. In the same year he represented the Association of Military Surgeons at the convention of the British Medical Association in London.

He was a member of many lay associations and his interest in congenial friends was second only to his interest in his profession.

Dr. Chancellor is survived by two brothers.

### THE IDEAL GUEST FOR CONVALESCENTS

Would you be an ideal visitor at the bedside of a convalescing friend? Being so aids materially in getting the patient on the road to health, Louise P. St. John tells *Hygeia* readers. To be attendant and gracious for a short time is easy, she says. The least stable friend will dash to the hospital with flowers and many glib "so sorrys" and "too bads" but it is the friend who stands by the patient through a long illness who really counts.

The worst plague to the convalescent is the Professional Cheerer, says Miss St. John. No matter how low the patient may be, he rushes blithely up to the bed, wrings an emaciated hand, beams in a pseudo-cheery manner and proceeds with his stereotyped speech.

The vivacious guest—the dynamic person of robust constitution—even though he means well, saps the vitality of the patient, says Miss St. John.

But the visitor who is a real boon is the low voiced, understanding friend who pays regular but short visits and does not drag in the gossip of the village or talk about the patient's troubles. He does talk of the patient's hobbies and leaves him stimulated and happy.



## SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL  
FOR 1931(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

## HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

Lafayette County Medical Society, May 23, 1931.

## MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Fourth Annual Session, Joplin  
May 11, 12, 13, 14, 1931

## MINUTES OF THE HOUSE OF DELEGATES

Connor Hotel, Monday, May 11, 1931  
Morning Session

The first meeting of the House of Delegates of the Seventy-Fourth Annual Meeting of the Missouri State Medical Association, held at the Connor Hotel, Joplin, convened at 9:50 a. m. Monday, May 11, 1931, the President, Dr. W. C. Gayler, St. Louis, presiding.

At roll call sixty-nine officers and delegates responded as follows:

## Officers

President.....W. C. Gayler, St. Louis  
President-Elect...J. F. Harrison, Mexico  
Secretary-Editor..E. J. Goodwin, St. Louis  
Treasurer.....G. W. Hawkins, Salisbury

## Councilors

3rd District.....J. A. Crockett, Stanberry  
6th District.....J. S. Gashwiler, Novinger  
7th District.....H. B. Goodrich, Hannibal  
8th District.....B. K. Stumberg, St. Charles  
9th District.....A. R. McComas, Sturgeon  
12th District.....Spence Redman, Platte City  
13th District.....O. S. Gilliland, Kansas City  
15th District.....L. J. Schofield, Warrensburg  
16th District.....J. T. Hornback, Nevada  
17th District.....Guy Titsworth, Sedalia  
18th District.....W. L. Allee, Eldon  
19th District.....J. S. Summers, Jefferson City  
20th District.....Ralph L. Thompson, St. Louis

21st District.....N. W. Jarvis, Festus  
22nd District.....U. P. Haw, Benton  
25th District.....W. W. Johnston, Farmington  
27th District.....J. C. B. Davis, Willow Springs  
28th District.....W. M. West, Monett  
29th District.....R. M. James, Joplin

## Delegates

COUNTY	DELEGATE
Adair.....	Spencer L. Freeman, Kirksville
Audrain.....	R. W. Berrey, Mexico
Barry.....	W. M. West, Monett
Boone.....	Frank G. Nifong, Columbia
Buchanan.....	W. T. Elam, St. Joseph
Butler.....	F. L. Kneibert, Poplar Bluff
Caldwell.....	Geo. S. Dowell, Braymer
Callaway.....	A. D. Ferguson, Fulton
Camden.....	G. M. Moore, Linn Creek
Cape Girardeau...	B. W. Hays, Jackson
Carter-Shannon...	T. W. Cotton, Van Buren
Christian.....	R. R. Farthing, Ozark
Clay.....	E. C. Robichaux, Excelsior Spgs.
Cole.....	James Stewart, Jefferson City
Dunklin.....	S. E. Mitchell, Malden
Gentry.....	James N. Barger, Albany
Greene.....	H. A. Lowe, Springfield
Greene.....	Paul F. Cole, Springfield
Howell-Oregon...	P. D. Gum, West Plains
Jackson.....	Clyde O. Donaldson, Kansas City
Jackson.....	G. Wilse Robinson, Kansas City
Jackson.....	John G. Hayden, Kansas City
Jackson.....	Jabez N. Jackson, Kansas City
Jackson.....	John L. Robinson, Kansas City
Jackson.....	Hermon S. Major, Kansas City
Jackson.....	Peter T. Bohan, Kansas City
Jackson.....	Andrew W. McAlester, Kansas City
Jackson.....	James R. McVay, Kansas City
Jackson.....	E. Lee Miller, Kansas City
Jackson.....	B. Landis Elliott, Kansas City
Jasper.....	A. B. Clark, Joplin
Jasper.....	H. D. McGaughey, Joplin
Jefferson.....	Chas. E. Fallet, DeSoto
Laclede.....	J. C. Scott, Lebanon
Lafayette.....	E. L. Johnston, Concordia
Lawrence-Stone...	H. L. Kerr, Crane
Livingston.....	Donald M. Dowell, Chillicothe
Mississippi.....	A. H. Marshall, Charleston
Moniteau.....	J. P. Burke, Jr., California
Nodaway.....	C. D. Humberd, Barnard
Pettis.....	Alfred E. Monroe, Sedalia
Phelps.....	S. L. Baysinger, Rolla
St. Charles.....	A. P. Erich Schulz, St. Charles
St. Francois-Iron-	
Madison.....	H. M. Roebber, Bonne Terre
St. Louis.....	C. P. Dyer, Webster Groves
St. Louis.....	O. W. Koch, Clayton
St. Louis City.....	M. F. Engman, Jr., St. Louis
St. Louis City.....	Charles E. Hyndman, St. Louis
St. Louis City.....	Paul C. Schnoebelen, St. Louis
St. Louis City.....	Howard H. Bell, St. Louis
St. Louis City.....	Lee Pettit Gay, St. Louis
St. Louis City.....	R. B. H. Gradwohl, St. Louis
St. Louis City.....	C. E. Gilliland, St. Louis
St. Louis City.....	Samuel B. Grant, St. Louis
St. Louis City.....	C. H. Neilson, St. Louis
St. Louis City.....	J. E. Glenn, St. Louis
St. Louis City.....	Wm. T. Coughlin, St. Louis
St. Louis City.....	Roland S. Kieffer, St. Louis
St. Louis City.....	F. J. V. Krebs, St. Louis
Saline.....	Luther S. James, Blackburn
Texas.....	L. M. Edens, Cabool
Vernon-Cedar....	C. B. Davis, Walker

Dr. Jabez N. Jackson, Kansas City, moved that the reading of minutes of the last Annual Meeting be dispensed with and adopted as published in THE JOURNAL. Seconded and carried.

The President read his message and recommendation as follows:

### PRESIDENT'S MESSAGE AND RECOMMENDATIONS

As my terms of office as President-Elect and President are almost at the close, I desire to give an accounting of my activities in these last two years.

#### DEPARTMENTS FUNCTIONING SATISFACTORILY

In the beginning of my presidency it was my intention to take part very actively in the details of the management of the various departments of the Association but I soon found, to my surprise, that these departments were in the hands of specialists who did not need any active help.

The Secretary, the chairman of the Council and the heads of committees have acquired an understanding of their work that is the result of years of application and study.

The Public Policy Committee and the Defense Committee find that their duties have become more complicated and the amounts of money involved in their peculiar problems are much larger than they were in former years. The attitude of the public toward the physician seems to have changed so it is pertinent that the reports of these committees be digested very carefully.

The Committee on Revision of the Constitution and By-Laws has some very important suggestions to make which should be considered very carefully.

The Postgraduate Committee has served well through another year and the wisdom of retaining a well-trained man at the head of this committee has again been demonstrated. The combining of several counties for scientific work as was done by five counties in the southeastern part of the state is particularly to be commended.

#### FOUR-YEAR COURSE AT COLUMBIA

It would probably be well for the organization to again express itself on the subject of the four-year course at the medical school at Columbia, the president and the board of curators of the university having endorsed the plan.

#### PUBLICITY

Publicity in the newspapers and possibly over the radio for the purpose of educating the public on questions of sanitation and preventive medicines is a problem that we should study. The public demands this sort of information and if it is not given to them under our supervision, they will continue to get it from less worthy sources. It seems to me that the Council or the Public Policy Committee, or both of them working together, could best supervise this work. One question to be decided is whether the individual contributor should use his name with his contribution or whether it should appear only as the work of a member of the Missouri State Medical Association.

#### NURSES

One of the most important phases of the practice of medicine today is the department of nursing. Without the friendly and intelligent cooperation of the nurses our work would be unbearable. Recently, at great expense, a survey of the nursing situation throughout the country was made and the result published in a book entitled "Nurses, Patients and Pocketbooks," by Mrs. May Ayres Burgess, director of the committee on the grading of nurses' schools. As most of you know, assertions of a startling character appear in this book. Would it be advisable to instruct one of our committees to make a survey of the nursing situation in Missouri?

#### BASIC SCIENCE LAW

A basic science law provides that all who offer to treat the sick must have certain fundamental knowledge and that an identical examination must be passed by all either before they take the state board examination or before they receive their license to practice the art of healing. Chemistry, physiology, anatomy, pathology, hygiene, and in some cases, bacteriology are included in the examinations given by the boards of basic sciences in the six states (Arkansas, District of Columbia, Minnesota, Nebraska, Washington, and Wisconsin) that have adopted the law. The physician, dentist, osteopath, chiropractor, chiropodist, certain laboratory technicians and all the irregular practitioners are affected by this law. While I neither favor nor oppose a law of this kind, probably it would be well for the Association to express itself on the subject.

Respectfully submitted,  
WENZEL C. GAYLER, President

Dr. C. D. Humberd, Barnard, moved that the President's Message and Recommendations be referred to the Council. Seconded and carried.

The President announced the appointment of the following reference committees:

#### Reference Committee on Constitution and By-Laws

Dr. T. W. Cotton, Van Buren, Chairman.  
Dr. H. A. Lowe, Springfield.  
Dr. B. W. Hays, Jackson.

#### Reference Committee on Resolutions

Dr. Ralph L. Thompson, St. Louis, Chairman.  
Dr. B. Landis Elliott, Kansas City.  
Dr. C. W. Hamlin, Palmyra.

#### Reference Committee on Miscellaneous Affairs

Dr. A. B. Clark, Joplin, Chairman.  
Dr. Alfred E. Monroe, Sedalia.  
Dr. C. J. Clapsaddle, Ste. Genevieve.

Dr. R. M. James, Joplin, reported for the General Committee on Arrangements, as follows:

#### Report of the General Committee on Arrangements

Your Committee on Arrangements has had only three meetings in the last year. However, we have arranged a meeting place for you that we think is not surpassed by any place in the State. The management of the Connor Hotel has wholeheartedly cooperated with us in arranging for this meeting, and they have donated all these meeting rooms for your pleasure.

Dr. O. T. Blanke has charge of your entertainment, and for those who can read we have printed in the program exactly what you may expect. Those who cannot read can ask their neighbors. If you do not have a good time it is your own fault. Everything is wide open for you.

R. M. JAMES, Chairman  
W. M. WEST  
GUY TITSWORTH

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the report of the General Committee on Arrangements was adopted.

The Secretary, Dr. E. J. Goodwin, St. Louis, read his report as follows:

#### REPORT OF THE SECRETARY

Last year we had an increase of 14 in the number of members as compared with the number reported on May 1, 1929, but this year I regret to say that we have 67 less than at this time in 1930. I rather expected such a showing because the general depression in all economic fields has had its effect upon our members by reducing their income although the volume of practice seems not to be correspondingly lessened. I can report, however, that the value of membership in our organization is not underestimated by those who have found it necessary to sever their membership. I have numerous letters stating that they regret the necessity and will renew their affiliation as soon as they can do so.

The activities of the county societies are very commendable. Only here and there do we find a group failing to carry on the meetings and several societies which have been somewhat dormant for two or three years have taken on new life and resumed regular meetings. One of the reasons why this has been accomplished is the splendid service of the Postgraduate Committee.

The Committee on Public Policy will report on legislative matters as developed at the recent session of the State Legislature but I might say that it was through the work of the American Medical Association that the Bureau of Narcotics and the Bureau of Prohibition have amended some of their rules so as to relieve physicians of some of the onerous and needless details in handling narcotics and alcohol.

Amendments to the Constitution and By-Laws are ready for action at this meeting. One of these is an amendment to the Constitution adding three vice presidents to the list of officers to the Association. The other is a by-law defining the duties of the vice presidents. These will be presented by the Committee on Constitution and By-Laws.

During the year death claimed one of our active and efficient Councilors, Dr. T. F. Estel, Altenburg, Councilor of the Twenty-First District; Dr. Tinsley Brown, Hamilton, a former president and for very many years secretary of his



county medical society; Dr. T. J. Downing, New London, a former councilor and secretary of his county medical society practically since the reorganization; and Dr. A. R. Kieffer, St. Louis, a former president and father of the movement that culminated in the creation of a permanent home for the St. Louis Medical Society.

The offices of the Association continue to be a source of information to numerous organizations, the press, and individuals on subjects pertaining to the formulas of medicine sold to the public, on medical institutions, irregular and regular, on the status of certain practitioners in both the regular practice of medicine and in the cults. These activities with the cooperation rendered standing committees by relieving them as much as possible of clerical and detail service keep the clerical force and your secretary-editor well occupied throughout the year.

I hope the officers and councilors as well as others may attend the annual dinner given to the county society secretaries. Your presence on this occasion will be a source of encouragement to these hard-working members—and the Association pays for the repast. The dinner will be given in the Gold Room of the Connor Hotel at six o'clock Wednesday evening.

You will notice that we have a very small number of exhibitors in the commercial exhibit hall as compared with former years. For your information I would like to say that manufacturers and other commercial houses that have business relations with practitioners of medicine are beginning to limit their exhibits to the annual meeting of the American Medical Association and other national medical meetings so that those who exhibit at state association meetings have a business that is more or less confined to the state in which they exhibit.

The terms of the councilors in the even numbered districts expire this year as do the terms of two delegates to the American Medical Association.

#### Status of Membership

Number of members, May 1, 1930.....	3327
New .....	109
Reinstated .....	32
	—
Total .....	3468
Resigned .....	12
Transferred .....	55
Dropped .....	81
Deceased .....	59
Suspended .....	1
	208
Total, May 1, 1931.....	3260

Respectfully submitted,

E. J. GOODWIN, Secretary

On motion, duly seconded, the Secretary's report was referred to the Council.

The Treasurer, Dr. G. W. Hawkins, Salisbury, read his report as follows:

#### REPORT OF THE TREASURER

I have the honor to submit the following report of the financial condition of the treasury of the Missouri State Medical Association at the close of business May 1, 1931.

##### General Fund

Receipts	
Balance May 10, 1930.....	\$12,236.08
County dues .....	21,295.00
Advertising .....	8,318.30
Medical Protective Company (Rent).....	540.00
Dr. Bradford's expense .....	8.00
Exhibit Space .....	477.50
Interest 1-1-30 to 12-31-30.....	37.50

Total .....

##### Disbursements

Vouchers paid .....

Balance, May 1, 1931.....

#### St. Louis Medical Society

##### Executive Secretary's Salary Fund

Receipts	
Balance May 10, 1930.....	\$ 3,541.69
Interest 1-1-30 to 12-31-30.....	7.50

Total .....

##### Disbursements

Vouchers paid .....

Balance May 1, 1931.....

#### Legislative Fund

##### Receipts

Balance May 10, 1930.....	\$ 3,361.29
Transferred from General Fund.....	2,727.00
Interest 1-1-30 to 12-31-30.....	27.00

Total .....

##### Disbursements

Vouchers paid .....

Balance May 1, 1931.....

#### Defense Fund

##### Receipts

Balance May 10, 1930.....	\$ 1,874.27
Interest 1-1-30 to 12-31-30.....	16.00

Total .....

##### Disbursements

Vouchers paid .....

Balance May 1, 1931.....

#### Sinking Fund

##### Receipts

Balance May 10, 1930.....	\$ 727.02
Interest 1-1-30 to 12-31-30.....	7.00

Balance May 1, 1931.....

##### Recapitulation

May 1, 1931	\$11,872.16
General Fund .....	
St. Louis Medical Society Executive Secretary's Salary Fund .....	7.50
Legislative Fund .....	3,284.35
Defense Fund .....	1,140.27
Sinking Fund .....	734.02
Checking in transit.....	4.00

Total .....

G. W. HAWKINS, Treasurer

On motion, duly seconded, the report of the Treasurer was referred to the Council.

The report of the Committee on Scientific Work was read by the Chairman, Dr. E. J. Goodwin, St. Louis, as follows:

#### REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The Committee on Scientific Work again apologizes as it did last year for crowding the program with such a large number of papers but pleads in extenuation that the numerous requests for the privilege of reading papers could not be ignored. The Committee feels that the large number of contributions offered for the session indicates a gratifying spirit of interest in the Annual Session. An examination of the topics to be discussed will show that there are many papers of a highly interesting and practical nature. Symposia have again been given prominence, there being one on traumatic surgery; one on appendicitis, and one on heart diseases.

Six guests have accepted our invitation to address us. These are Dr. Morris Fishbein, Chicago, editor, *The Journal of the American Medical Association*; Dr. Alton Ochsner, New Orleans, professor of surgery, Tulane University Medical School; Dr. E. P. Sloan, Bloomington, Illinois; Dr. George S. Foster, Manchester, New Hampshire; Dr. C. E. Rice, Rolla, passed assistant surgeon in charge of Trachoma Service, U. S. Public Health Service; Dr. Charles W. Greene, Columbia, Mo., professor of physiology, Missouri State University.

E. J. GOODWIN, Chairman  
ROBERT F. HYLAND  
J. E. STOWERS

On motion of Dr. J. R. McVay, Kansas City, duly seconded, the report of the Committee on Scientific Work was adopted.

Dr. W. Logan Allee, Eldon, Chairman of the Committee on Public Policy, read his report as follows:

#### REPORT OF COMMITTEE ON PUBLIC POLICY

Your committee submits to you the following report of its activities for the past year.

##### Legislative Activities

Senate Bill No. 222 by Senator Brogan and House Bill No. 403 by Dr. Smith of Lincoln and Hammett of Randolph, were introduced in the General Assembly on February 11 and

12, respectively, the two bills being identical, and are an amendment to the present Workmen's Compensation Act, Section 3311.

The present Act provides that, in addition to all other compensation, the employee shall receive and the employer shall provide such medical, surgical and hospital treatment, including nurse, ambulance and medicines, as may reasonably be required for the first 60 days after the injury or disability, to cure and relieve from the effects of the injury, not exceeding in amount the sum of two hundred fifty dollars, and thereafter such additional similar treatment within one year from the date of the injury as the Commission by special order may determine to be necessary.

The law as now amended, provides that the employee shall receive, and the employer shall provide, such medical surgical and hospital treatment, including nursing, ambulance and medicines, as may reasonably be required for the first 90 days after the injury or disability, to cure and relieve from the effects of the injury, not exceeding in amount the sum of seven hundred fifty dollars, and thereafter such additional similar treatment as the Commission by special order may determine to be necessary.

These bills were both reported favorably out of committee, and House Bill No. 403 was taken up for third reading and final passage on March 24 in the House and passed with one or two dissenting votes. When the bill reached the Senate for third reading, Senate Bill No. 222 being on the calendar, the House Bill was substituted for the Senate Bill by Senator Brogan and passed on April 8 by a vote of 21 to 7. The bill was sent to the Governor and on the 16th of April he signed the bill. The law will go into effect 90 days after the *sine die* adjournment of the Legislature, which at present is fixed at June 15.

Two other Acts were passed that are of interest to the medical profession: they are House Bill No. 126 and House Bill No. 127, both by Maxey and Hammett. They were introduced upon the request of the State Board of Health.

House Bill No. 126 provides that the county registrars shall receive 50 cents instead of 25 cents as at present for the reporting of births, and the state to pay the fee instead of the county, as at present.

House Bill No. 127 provides a method for certifying a birth prior to the records in the State Board of Health upon payment of a fee of \$5.00. This will greatly facilitate the proving of births in civil actions, etc.

Among the measures that your committee was interested in and which failed of passage, are the following:

House Bill No. 127 provides a method for certifying a assistant physician for every 350 patients in every state hospital. The bill died on the Senate calendar.

House Bill No. 589 gives the State Board of Health supervision of mental and nervous hospitals, the equipment and facilities only. The bill was recommended do not pass the committee.

House Bill No. 594 providing for the sexual sterilization of inmates of state institutions in certain cases. The bill failed of passage on third reading.

House Bill No. 406 by Heege provided for the entry and treatment of poor persons in the new St. Louis County Hospital. St. Louis County has built a new hospital under Section 2905, Article V, Revised Statutes of Missouri, 1929. Indigent persons could not be admitted. House Bill No. 406 makes provisions by two new sections so that indigent persons may be taken in. This bill died on the last day on the Senate calendar.

Your committee found a new element at work at this session of the Legislature for the first time, in the agents and officers of the Missouri Medical Liberty League, a state association which is a member of a national organization. They had introduced into the Assembly two bills, House Bill No. 302 and House Bill No. 368.

House Bill No. 302 had for its purpose the making of vaccination noncompulsory in public schools, universities and colleges throughout the State. After an extended hearing by the House Public Health Committee, at which time a large delegation was heard favoring the bill including the heads of chiropractic schools, the bill was killed in the committee.

House Bill No. 368 was along similar lines, but broadened to include factories, etc.,—to prohibit the discharge of employees for nonvaccination. This bill was referred to the Committee on Criminal Justice and upon a hearing being held was immediately killed.

Section 113 in House Bill No. 640 appropriates \$100,000 for the care of crippled children at the University Hospital in Columbia; this is the largest amount that has been appropriated since the law was enacted in 1927.

There were a number of other bills which were referred to your committee that upon investigation we found would not affect in any way our present laws; most of these failed of passage.

W. L. ALLEE, Chairman  
ROBERT VINYARD  
W. T. ELAM

On motion the report was referred to the Reference Committee on Miscellaneous Affairs.

Dr. J. C. B. Davis, Willow Springs, Chairman of the Committee on Publication, read his report as follows:

## REPORT OF THE COMMITTEE ON PUBLICATION

The 27th volume of THE JOURNAL was completed with the December, 1930, issue. During the twelve months of 1930 THE JOURNAL published 84 original articles and 21 articles under the department of Washington University Clinics, making a total of 105 original articles. There were printed 59 editorials, 65 obituaries, 275 news items, 160 reports of county societies, the report of our Seventy-Third Annual Meeting, the report of the 54th Annual Meeting of the Southeast Missouri Medical Association, the report of the annual meeting of the Southwest Missouri Medical Association, reports of eight meetings of the Kansas City Academy of Medicine, and numerous miscellaneous items. One hundred thirty-nine books were received for review; 122 reviews were published. These books were sent to the medical libraries of the St. Louis Medical Society and Jackson County Medical Society, and some highly technical books were sent to the medical library of the State University at Columbia. THE JOURNAL contained 626 pages of reading matter and 434 pages of advertising, the latter earning \$9,778.46. The total cost of printing THE JOURNAL, including the cost of the illustrations, was \$7,908.58, leaving a net profit of \$1,869.88.

Notwithstanding the inclination of advertisers to cut down their appropriations, our JOURNAL was able to net a handsome profit from advertising, and in our opinion our JOURNAL far surpasses any state journal of our nearby states.

J. C. B. DAVIS, Chairman  
G. WILSE ROBINSON  
M. A. BLISS

On motion, duly seconded, this report was referred to the Council.

Dr. Charles E. Hyndman, St. Louis, Chairman of the Committee on Defense, read his report as follows:

## REPORT OF THE COMMITTEE ON DEFENSE

### Disposition of Cases

Cases pending May 1, 1930.....	14
Threats pending May 1, 1930.....	4
New cases during the year.....	11
New threats during the year.....	6
Cases settled during the year.....	5
Threats which have not developed into suits during the year .....	1
Cases pending May 1, 1931.....	20
Threats pending May 1, 1931.....	9
Financial assistance rendered during the year.....	\$750

As chairman of this committee I would like to make some remarks about this work which you as delegates should be familiar with and pass on to your colleagues. It would be impossible to go over all the cases, but some I will report.

We lost two suits, both of them against one doctor, a case of injury to a leg in which it was claimed that he overlooked a fracture. The first suit was decided against the doctor and a verdict of \$3,500 was rendered. A second suit recently resulted in a verdict for \$4,000. Both of these judgments have been appealed. A suit for \$20,000 was defeated—a verdict for \$1,000 for the defendant. One verdict of \$2,500 against the defendant is still in the Court of Appeals. One suit was tried, and on demurrer was dropped. One suit was settled by the insurance company paying \$150, and one suit for \$100,000 was defeated and the verdict rendered for the defendant. Another suit was settled by the insurance company paying \$100.

Things are changing in this particular department, and instead of getting better they are getting worse. This little report I submit to you is merely a drop in the bucket compared with the number of malpractice suits filed and the number of threats in this State. We only have a very few of them, but when you figure that one company alone has had over 180 cases during this year, and taking into consideration the number of insurance companies in the State, you can imagine what it must amount to. Of course that includes dentists as well.

We had a very sensational case in St. Louis in which \$100,000 was involved, which was plainly a case of malpractice. It was defeated because of the interest and wonderful response of the medical profession. I would say that in every case we have had throughout the State the response of the members of the Missouri State Medical Association has been wonderful.



I think we should all give this matter of defense very serious consideration. It is very embarrassing for a man to come from his home town to testify against a former patient, or against his friends and associates, but in a number of cases this thing has happened, and in every case the doctor has come and told the truth in spite of the embarrassing circumstances. All of us are perhaps a little indifferent to malpractice suits, a little careless about our own welfare, and we are ignorant of what to do when this does happen. We are apt to think "The King can do no wrong," but he can. The doctor is apt to figure that no malpractice suit will be brought against him—that his patients are long-time friends.

Doctors are careless to go unprotected. Every doctor practicing medicine in Missouri should carry insurance that will protect his family because of this increasing demand for indemnity. Since the Workmen's Compensation Act and the business depression lawyers are hungry, and those who formerly never took such a suit are now taking them freely. The amount of money paid for insurance is negligible when compared with your personal comfort when you are sued. Not one doctor in one hundred knows what to do when a suit is filed, and if he selects a lawyer who does not know what to do his case is absolutely hopeless. It is far better to pay a small sum of money and have a man who is engaged in that sort of work to defend you, and if you lose, let him pay instead of having your property attached and all the personal inconvenience. You would be surprised to know how many members of this Association are ignorant of their rights. Old members have no idea how to proceed. Some of them have not read the Constitution and By-Laws. The Association has been liberal in its allowance and its co-operation, but it is important that every man carry insurance.

CHARLES E. HYNDMAN, Chairman  
M. L. KLINEFELTER  
O. B. ZEINERT

On motion this report was referred to the Council.

The report of the Committee on Medical Education and Hospitals was read by the Chairman, Dr. R. A. Woolsey, St. Louis, as follows:

#### REPORT OF COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

At a meeting of your Council some two years ago, I made a statement that the crying need in Missouri was for a replacement of the country doctor. I made a further statement that the old adage "You may take a boy out of the country, but you cannot take the country out of the boy" applied as well to the lad raised in the city; and that in order to replace the country doctor the country boy must be educated. However, the country boy is financially unable to meet the present conditions of medical education; and that in my opinion the solution was a full course in medicine at the State University; and that this would entail the erection and maintenance of additional hospital facilities necessary in the teaching of clinical medicine. That from my viewpoint, the needy of the State were as much entitled to state aid for physical illness as for mental illness.

At a meeting of your Council at Columbia on November 17, 1930, the following resolution was introduced by me and seconded by Dr. W. H. Breuer, St. James:

"Resolved, That the Council of the Missouri State Medical Association, at its annual meeting held in Columbia, November 17, 1930, felicitates the Board of Curators of the University of Missouri and Dr. Walter Williams, President of the University, upon reestablishing the four-year course in the school of medicine, thus placing the medical school upon a parity with the other departments that lead to the acquisition of a degree; and extend to the President and to the Board of Curators the assurance that the Missouri State Medical Association will earnestly cooperate with them in establishing clinical facilities for the adequate instruction of medical students and in obtaining the necessary funds for the erection of a suitable hospital when the need for such an institution becomes evident; and hold itself in readiness at all times to work harmoniously with the administration to make the medical school an outstanding factor in the maintenance of high standards in the medical field."

The Medical Department of the University of Missouri was organized in 1872. The last class was graduated in 1909 when medical education demanded clinical teaching during the last two years of instruction. Since that time the pendulum has gradually been swinging to less emphasis on clinical and bedside instructions, and to stress, rather, education for education's sake. The tendency is to make the profession of medicine an aristocracy. (I quote W. J. Mayo.)

On account of transportation the time is only recently ripe to erect the main building or first unit of a state hospital and add the last two years to the medical curriculum. Columbia is centrally located and is hooked up with a network of highways that makes it accessible from any part of the state. One's own car can be transformed into an ambulance in a few minutes and put a patient in Columbia within six

hours from any part of the state. On occasion, generous offers have been made to the State University to handle these last two years. Twenty years ago Dr. Pinkney French, who controlled the Barnes' Medical School, offered the then excellent building, equipment, and the Centenary Hospital adjoining, to the University—lock, stock and barrel—gratis. It was not then considered that the University could afford to take over this property with the political hazard of its being separated from the parent body.

Your committee feels that the student is entitled to receive his entire medical course under one roof; that it is not fair to the student nor the University to give the first two years at one point and the second two years at a distant point; that the University has an excellent medical school building well equipped on its own grounds; that there is a University Hospital of 90 beds and the Boone County Hospital of 60 beds as an excellent start for clinical material. The cost of a medical school building in a distant city including grounds would be much more than the first hundred-bed unit of a state hospital on the University grounds.

We feel that the political hazard of separating the egg from its shell is unchanged and regardless of what arguments to the contrary might be presented the political issue is bound to be present, legislative appropriations demanded at the expense of the common cause, communities outraged, etc. Only today comes notice of Governor Caulfield's vetoing the crippled children's measure on the ground of doubling state efforts and expenses. It must be admitted that the University can operate most successfully and economically in one community. It must be assumed that the legislature which represents the entire State would look more kindly and appropriate more liberally to Columbia where the University is established than at any other point within the State.

On motion, duly seconded, this report was referred to the Council.

Dr. Charles H. Neilson, St. Louis, Chairman of the Committee on Postgraduate Course, read his report as follows:

#### REPORT OF COMMITTEE ON POSTGRADUATE COURSE

I am very happy to state that the work in this field this year has been more extensive, and we hope better, than last year. I wish to thank the officers of the Association, the President and Secretary, also the members of the Association who have gone out to different parts of the State to give clinics, read papers, and make speeches. We have just heard a paper on the necessity for educating the young people of the State of Missouri. We also need something to educate the doctors of the State of Missouri. One of the saddest things is to see a doctor graduate, then deteriorate because of lack of study and lack of opportunity.

I spoke about this at the last meeting at Hannibal. The State Association is liberal, in my judgment. It sends out the very best men who offer themselves, and it sends out men who are drafted for this purpose. Last year we sent out 70 members to 54 meetings in 22 counties. During the preceding year we sent out 56 members to 37 meetings in 14 counties. I have a list of all the meetings that have been held in my district, with the topics.

I wish you would avail yourselves of this opportunity. The great centers of the State, St. Louis, Kansas City, St. Joseph, Springfield and Joplin, and other towns, have men in them that are well able and are willing to go out and help you gentlemen keep up with the times. I am not saying that you do not keep up with the times, but as I said last year, I do not know anything more difficult than for a busy physician to keep up with what is going on. You subscribe to magazines, but they do not cover your need. You must have first-hand information, and I beg of you men in remote counties especially to avail yourselves of this opportunity. At one time during the year I thought of sending out letters to every county secretary asking if he did not wish to have some addresses at his county meetings. The attendance is hardly large enough, however, except in some of the larger counties. In one instance we had a tri-county meeting and the men came back with glowing accounts of the interest and attendance. But to send men from Kansas City or St. Louis to a county where only three or four men attend is futile. I think we should form groups large enough so that the speakers will have a good audience. There is something in numbers. It makes for enthusiasm and the thing is put over.

I do not know anything more to say, but I do know that this is the best and biggest thing in the State Medical Association today—the education of the doctor. You are entitled to it and I am asking that you take advantage of the opportunity.

On motion, duly seconded, the report was referred to the Council.

Dr. Joseph W. Love, Springfield, Chairman of the Committee on Medical Economics, read his report as follows:

## REPORT OF COMMITTEE ON MEDICAL ECONOMICS

I feel that it is exceedingly important that the subject of medical economics is so overlapping in this country that it has already been touched upon in some detail by every committee report that has been submitted this morning. Allusion was made by the Secretary in his report to the fact that due to economic depression there was a slight falling off in the membership, the economic conditions affecting the practitioners of medicine. Allusion was also made in the President's address and in Dr. Woolsey's report, to the necessity for supplying opportunity to the native sons of Missouri to acquire a medical education. One of the most forward steps that has been made toward supplying worthy aspirants to the profession of the healing art in this State was when the president and board of curators of the State University approved plans for a four-year course in medicine at the State University. It will have a distinct effect upon affording opportunity for matriculation and assurance of completion of their medical course to many promising and worthy sons of our State who will return to their communities and will help materially to relieve the lack of medical facilities in the rural communities. Always in time of economic depression when means of subsistence are restricted organizations that may have a temporary financial value spring up. Allusion was made in the report of Council to the American Medical Association last year, and also in the report of the committee on education and hospitals, that certain encroachments were made by institutions which were organized and promoted by laymen to engage in corporation practice, and also that more and more hospitals found they had a good many idle beds as a result of industrial depression, so they offered special inducements not only for the care of the sick but also to supply the operator's service, collecting for the service and appropriating it to their own use, and in some instances without remuneration to the staff; in other instances collecting it and paying the staff, encroaching upon the system of contract practice.

One of the most significant advantages which has accrued was included in Dr. Allee's report in regard to the amendment of the Workmen's Compensation Act. It is a distinct advance in medical economics and will help to correct many faults in the administration of the law in the past. Also, there has been a contact committee authorized by the St. Louis Medical Society to meet with the insurance men, and come to an agreement about certain misunderstandings in regard to the administration of the Workmen's Compensation Act. This has a distinct advantage in ironing out a great many misunderstandings and bringing about a more amicable relation between the profession and the insurance companies.

One important thing is an economic survey committee appointed by the authority of the St. Louis Medical Society to investigate the subject of contract practice, the clinical abuse of corporation practice and related medical economic problems, which has been working for nearly a year and with which Dr. R. B. H. Gradwohl, St. Louis, is more familiar than I am so I have asked him to outline the plan to you. I think it will be the entering wedge to other surveys which may be made and help materially to benefit the economic interests of the profession.

DR. R. B. H. GRADWOHL: I am not a member of the St. Louis committee but I referred our problem to Dr. L. R. Sante, St. Louis, who is chairman, and he very kindly gave me an abstract of what has been accomplished by the St. Louis Medical Society.

### The abstract follows:

The St. Louis Medical Society authorized the appointment of a committee known as the Economic Survey Committee last March to investigate and report on contract practice and fees, clinic abuse, industrial and liability insurance, the Workmen's Compensation Act as to its administration and suggestions on needed amendments, emergency treatment in automobile accidents and other related problems.

The committee was appointed and immediately went to work on a survey of the Workmen's Compensation Act inasmuch as the Legislature would meet in 1931 and suggestions as to amendments would have to be made within a few months. A questionnaire was mailed to all members, the abuses compiled and conferences as well as round-table discussions were held with the insurance interests with the result that the Society approved the recommendation of the committee that the allowance of the act for medical, surgical and hospital expenses for injured workmen be increased to an unlimited amount. The State Association, however, in ironing out the matter with the same insurance representatives, as you know, compromised on \$750 which passed the legislature unopposed.

The recommendation of the committee also suggested the

appointment of a contact committee from our Society to meet and confer with a similar committee from the St. Louis Compensation Claim Association having for its purpose complete cooperation between insurance carriers and the medical profession throughout the entire State of Missouri in order to provide an adequate and satisfactory means of adjusting disputes between carriers and physicians on charges made for medical service rendered in compensation work. The recommendation also urged all members of the profession to refer complaints to this committee for settlement rather than necessitating the expense of court action. This committee has been appointed.

The committee then took up the question of clinic abuse and has just mailed out questionnaires to all members of the Society.

The other subjects have not as yet been investigated by the committee.

Dr. Robert Vinyard, now of Springfield, was a member of the reference committee which reviewed the recommendations of our committee and is entirely familiar with all the conferences held by the committee. Mr. E. H. Bartelsmeyer, St. Louis, informs me he has communicated with Dr. Vinyard who will no doubt be very glad to discuss the entire situation with Dr. Love.

We shall be glad to cooperate in any way possible with your committee because every physician in the State is vitally interested in the problems which confront us.

On motion, duly seconded, the report of the Committee on Medical Economics was referred to the Reference Committee on Miscellaneous Affairs.

Dr. M. P. Overholser, Harrisonville, Chairman of the Committee on Revision of the Constitution and By-Laws, read his report as follows:

## REPORT OF COMMITTEE ON REVISION OF THE CONSTITUTION AND BY-LAWS

Amend Article IX, Sec. 1, of the Constitution by adding after the word "President-Elect" in the second line, the words "three Vice Presidents," so that the Section when amended shall read:

Sec. 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty-nine Councilors more or less as shall be determined by the House of Delegates from time to time.

This amendment is now ready for adoption it having lain on the table for one year as required by the Constitution and By-Laws. The only change is the addition of three Vice Presidents as officers of the Association.

I move the adoption of this amendment. Seconded and carried.

Amend Chapter V of the By-Laws by adding a new section to be known as Section 2a as follows:

Sec. 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the President the Council shall select one of the Vice Presidents to succeed him.

This amendment describes the duties of the vice presidents and provides for a successor to the President between sessions.

I move the adoption of this amendment. Seconded and carried.

Amend Chapter XI, Section 3, line 6, by striking out the words "is a bona fide resident of" and inserting in their place the words "resides or practices in," so that the Section when amended shall read as follows:

Sec. 3. Each county society shall judge of the qualifications of its members, subject to review and final decision by the Council of the State Association. Every reputable and legally qualified physician who does not support nor practice nor profess to practice sectarian medicine who resides or practices in the same county, who shall apply for membership on the prescribed form and subscribe for THE JOURNAL and pay the annual dues for the current year, shall be eligible for election to membership.

This amendment liberalizes the qualifications of applicants for membership by deleting the requirement that he "is a bona fide resident of" the county in which he holds membership and makes him eligible if he "resides or practices in" the same county in which he holds membership. Your Committee is advised that confusion results from the requirement "is a bona fide resident of" because some members live in one county but practice almost exclusively and hold membership in an adjoining county. The Committee also learns that the confusion is more pronounced when a member lives in an adjoining state but is not licensed to practice in that state, hence he is ineligible to membership and cannot practice in that state. His practice is exclusively in Missouri. This amendment is suggested in response to a request from the Council that this provision be clarified.

M. P. OVERHOLSER, Chairman  
C. W. THIERRY, JR.  
W. K. TRIMBLE



This amendment was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

The following amendments to the By-Laws were introduced and referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend Chapter VII, Section 1, by adding a new standing committee to be known as

A Committee on Cancer.

Amend Chapter VII by adding a new section to be known as Section 9, as follows:

The Committee on Cancer shall investigate the facilities provided for the care of the cancer sufferer and for the study of cancer in the State of Missouri and shall cooperate with the American Society for the Control of Cancer and other ethical organizations for cancer control to the end that authentic information in regard to diagnosis and treatment of cancer be properly disseminated throughout the State of Missouri.

The special committee appointed to consider the Widow's Fund, group insurance and Memory Fund, Dr. Frank I. Ridge, Kansas City, Chairman, reported as follows:

#### REPORT OF SPECIAL COMMITTEE ON INSURANCE AND MEMORY FUNDS

Your Committee on Insurance and Memory Funds has 42 applications, and has received checks for that amount. I will not go into ages except to say that the youngest was 32 years of age and the oldest was 80, with an average of 59 years, 1 month and 3 days. There were 11 applications under 53 years of age.

In view of this fact, and also in view of the fact that the so-called mutual insurance companies that have been operated in other branches throughout the State in the last year find themselves in a rather precarious condition, both economically and as far as membership is concerned, your committee recommends that the establishment of a Widow's Fund as outlined without restrictions be abandoned, at least for the present.

On motion of Dr. Elam, duly seconded, this report was adopted.

The special committee appointed to consider the Andrew Walker McAlester Memorial Foundation, Dr. Frank G. Nifong, Columbia, Chairman, reported as follows:

#### REPORT OF THE SPECIAL COMMITTEE ON THE ANDREW WALKER McALESTER MEMORIAL FOUNDATION

Last year we elected two trustees for the Foundation to be known as the McAlester Memorial Foundation. It was the wish of the Association and the friends of Dr. McAlester to memorialize him in some fitting way, something that would be enduring and be worthy of him. Many projects were mentioned, such as loan funds for students, a library, a lectureship in the Medical College of Missouri. But those closely associated with him, who knew his practical idealism, were acquainted with the fact that one of his hobbies in the latter part of his life was to serve the people of his State. That was always his dominant idea—service—so we began to think of what would be an enduring memorial for him that would fittingly represent his ideals. We knew he had in mind this idea, that in the last half century medicine had become a real science, that it contained basic truths which should be imparted to the elementary minds, and therefore should be taught to little children by visual education. He had gathered a number of slides that could be used in elementary schools, and also slides for the grades and on to colleges and universities. He knew that if this basic medical health education could be disseminated among the pupils of the State many of our troubles would evaporate. The education of the children would benefit the population of the State. We do not intend to establish such a memorial. That Foundation requires money as well as talent and an organization through which it may function. So we decided to

organize what we call "The Andrew Walker McAlester Memorial Foundation." The purposes are to promote teaching of health to the laity in every possible way. It will be comprehensive, it will use any method of publicity, any method of teaching in schools, in health units, to individuals and to groups of the laity. We want to enlist the cooperation of all agencies of like purpose. Suppose we had an epidemic of typhoid in a town. Immediately this Foundation would function by sending a man there who is competent to teach the laity through the schools or the churches, like the extension method at the college.

These are the lines on which this Foundation is organized, and I am pleased to tell you that the organization is now complete and we have the trustees appointed, two from our Association, one appointed by the medical department of the State University, one by the alumni, one by the veterinary department of the State University, and two trustees to be appointed later by lay contributors to this movement. The University of Missouri curators are the handlers of the funds, but the trustees have the management of the educational program.

How may this Foundation function? It takes money "to make the mare go." We could use an unlimited amount with men in the field. We have not a cent of money. We hope to sell this thing to the laity. We hope you will all begin to cogitate over this and see how it will function. We have had a beautiful report on reeducating the doctors, emphasizing the value of it in Missouri. Right in line with this is another educational program, and one in which the medical profession must take a hand. We must take more interest in education about health. We must not let the lay societies run away with it. This Foundation through the generosity of the members of this Association may begin to function at once. You members who are capable of talking to lay people on health subjects may volunteer your services to this Foundation, just as you have volunteered your services to the State Association in the postgraduate courses, and no doubt by a proper digest of our talent we can do a lot of work in spreading health information and teaching the laity. As you know, talking to laymen and children takes a good deal of skill. You cannot use technical words—you must get down to elementary language and do it in a simple way. An effort through this foundation should be made to induce public schools and junior colleges to incorporate health teaching. I happen to know a junior college in the mid-west without any such teaching. Why do they not do it? Because other schools working with them do not give credit for this education, which is quite as cultural and oftentimes more valuable than the humanities they are taught in the ordinary curriculum. Some of the colleges have consented and are beginning to have health teaching in a sort of way. If these basic things were taught to every child in the junior and grade schools, a lot of our troubles would disappear. This, in a general way, is the status of the Andrew Walker McAlester Memorial Foundation.

Dr. A. R. McCOMAS: I can only add to what Dr. Nifong has said that those of us—and that includes the entire older membership of the State Medical Association—who had a great love and affection for Doctor McAlester know it was based on worthiness. He was one of the outstanding men of our Association, one of the outstanding men in the State at large, not only as a doctor but as a citizen. In summing up the noble work of his life he stressed in his last years the idea of service. Those of us who were closely associated with him he imbued with this spirit, and while numerous things were proposed for the object of this Foundation those of us who knew him best especially in the later years, decided that this was the proper way in which to memorialize this great man. There never was any intention to overlap in any way or to interfere with any of the State agencies but rather to work harmoniously. We want to perpetuate Dr. McAlester's life and the principles that guided him—never a combatant, but rather a person who was looking forward all the time to harmony and the betterment of conditions in the State. In other words, his life was devoted to service, and we could think of no better way of establishing a memorial than by the means outlined in these few paragraphs which have been worked on for months by this original committee, which of course goes out of existence now since the membership of the new committee has been formed.

On motion of Dr. W. T. Elam, St. Joseph, seconded by Dr. J. R. McVay, Kansas City, this report was adopted.

Dr. R. M. James, Joplin, announced a dinner at six o'clock Monday evening, in the Empire ball room, as a testimonial to Dr. Spence Redman, Platte City, Councilor of the Twelfth District.

President Gayler announced the appointment of the Committee on Nominations, as follows:

## Committee on Nominations

James R. McVay, Kansas City, Chairman  
A. P. Erich Schulz, St. Charles  
C. H. Dixon, Moberly  
C. D. Humbert, Barnard  
Edward D. James, Joplin  
E. C. Shelton, Eldon  
C. E. Hyndman, St. Louis  
P. F. Cole, Springfield  
L. M. Edens, Cabool

On motion, adjourned.

## Monday, May 11, 1931—Afternoon Session

The House of Delegates was called to order at 3:10 p. m., Monday, May 11, 1931, by the President, Dr. W. C. Gayler, St. Louis.

Dr. A. R. McComas, Sturgeon, Chairman of the Council, read the report of the Council as follows:

## REPORT OF THE COUNCIL

The Executive Committee of the Council has held four meetings and the Council has held its annual meeting since the 1930 session of the Association.

## Executive Committee Meeting, Sept. 17, 1930

The Executive Committee met at the Melbourne Hotel, St. Louis, September 17, 1930, with all the members present and two members of the Committee on Public Policy.

Dr. W. L. Allee, Eldon, chairman of the Committee on Public Policy, reported on the complaint from West Plains that farm agents from the College of Agriculture of the State University announced in the newspapers that they would hold health clinics for citizens. The investigation of the activities of the farm agents was put off until a later time because of the absence of Fred B. Mumford, Dean of the College of Agriculture at Columbia.

The Secretary reported that the Treasurer, Dr. George W. Hawkins, Salisbury, had obtained a depository bond in favor of the Association for \$25,000 from the Salisbury Savings Bank, Salisbury, and that he had transferred the funds of the Association from the Traders Bank at Salisbury to the Salisbury Savings Bank. The bond was issued by the Maryland Casualty Company.

President Gayler announced the appointment of Dr. W. T. Elam, St. Joseph, as a member of the Committee on Public Policy to fill the vacancy caused by the death of Dr. R. L. Hamilton, Richmond; the appointment of Dr. N. W. Jarvis, Festus, as a member of the Twenty-First District to fill the vacancy caused by the death of Dr. T. F. Estel, Altenburg; and the appointment of Dr. M. Pinson Neal, Columbia, as a member of the Committee on Postgraduate Work to fill the vacancy caused by the death of Dr. Guy L. Noyes, Columbia. All of these appointments are for the unexpired terms and were approved by the Executive Committee.

On motion of Dr. W. H. Breuer, St. James, duly seconded and carried, the Executive Committee instructed the Committee on Scientific Work to arrange for the addresses of the President and guests to be delivered on the night of Tuesday during the Annual Session instead of Wednesday as has been the custom in the past.

Dr. W. L. Allee, Eldon, chairman of the Committee on Public Policy, reported that Proposition Number 4, to be voted on at the general election on November 4, authorized the Workmen's Compensation Committee to "contract with physicians, surgeons and hospitals for medical and surgical treatment and the care and nursing of injured persons entitled to benefits from said fund."

On motion of Dr. Ralph L. Thompson, St. Louis, the Committee on Public Policy and the editor of THE JOURNAL were instructed to comment in THE JOURNAL on the objections to this proposition.

## Executive Committee Meeting, Oct. 24, 1930

The Executive Committee met at the Melbourne Hotel, St. Louis, October 24, with all the members present and the following guests: Mrs. Mary Breckenridge, director of the Frontier Nursing Service; Mrs. Hammer, Mr. H. S. Knight, Dr. Borden S. Veeder, Dr. Otto Schwarz, Dr. Fred J. Tausig, Dr. Robert Vinyard, all of St. Louis; Dr. James Stewart, Jefferson City; Dr. W. L. Allee, Eldon; Dr. J. C. B. Davis, Willow Springs.

The purpose of the meeting was to hear the plan offered by Mrs. Breckenridge to make a survey of the counties in the Ozark region to ascertain whether there was reason for inaugurating the work of the Frontier Nursing Service in that region. The Committee approved the plan to make the survey, which Mrs. Breckenridge said would be done without cost to the members of our Association.

## Executive Committee Meeting, Jan. 28, 1931

The Executive Committee met at the Melbourne Hotel, St. Louis, January 28, 1931, with all the members present.

At this meeting the Committee approved the introduction of a bill prepared by the Committee on Public Policy to increase the amount allowed for the first sixty days disability of an injured employee from \$250 to \$750 and to extend the time limit from sixty days to ninety days.

The Committee approved the employment of a representative at the Legislature under the direction of the Committee on Public Policy to watch legislative matters during the session of the Legislature that might affect the interest of our organization or the members of the Association.

## Annual Meeting of the Council, Nov. 17, 1930

The Annual Meeting of the Council was held at the Daniel Boone Tavern, Columbia, November 17, 1930. A majority of the Council and chairmen of the standing committees were present.

Dr. J. R. McVay, Kansas City, reported for the Committee on Postgraduate Course, that this service was being extended very rapidly due to the increase in the number of requests for speakers from the county societies.

Dr. W. L. Allee, Eldon, reported for the Committee on Public Policy that Proposition Number 4 giving the Workmen's Compensation Commission power to contract with physicians, surgeons and hospitals for medical and surgical care for injured employees was defeated. He also reported that the bill to increase the allowance from \$250 to \$750 and the number of days from sixty to ninety was ready to be introduced in the Legislature, and that Senator J. H. Brogan, St. Louis, had consented to introduce the bill. As you all know, the bill passed both houses and was signed by the Governor.

Dr. Ross A. Woolsey, St. Louis, reported for the Committee on Medical Education and Hospitals that the osteopaths in Carthage sought to compel the board of trustees of the Carthage City Hospital to permit osteopaths to treat patients in that hospital. Dr. Woolsey visited Carthage and exhibited to the chairman of the hospital board, who was inclined to accede to the request of the osteopaths, that numerous court decisions made it clear that the board of trustees of the Carthage City Hospital was the supreme authority in the choice of the staffs of hospitals and that they could permit or exclude any persons from practicing in the hospital and that there was no appeal from the decision of the board. The board of trustees opposed the admission of the osteopaths and they were excluded.

The Council adopted a resolution commending the Board of Curators of the State University and the President of the University, Dr. Walter Williams, upon the announcement that the four-year course in medicine would be reestablished. The resolution follows:

## Resolution Commending the Board of Curators

*Resolved*, That the Council of the Missouri State Medical Association at its Annual Meeting held in Columbia, November 17, 1930, felicitates the Board of Curators of the University of Missouri and Dr. Walter Williams, President of the University, upon reestablishing the four-year course in the school of medicine thus placing the medical school upon a parity with the other departments that lead to the acquisition of a degree; and extends to the President and to the Board of Curators the assurance that the Missouri State Medical Association will earnestly cooperate with them in establishing clinical facilities for the adequate instruction of medical students, and in obtaining the necessary funds for the erection of a suitable hospital when the need for such an institution becomes evident and holds itself in readiness at all times to work harmoniously with the administration to make the medical school an outstanding factor in the maintenance of high standards in the medical field.

Dr. Frank I. Ridge, Kansas City, Chairman of the Committee on Insurance and Memory Funds, reported that he considered his committee no longer functioning because they had completed the duty laid upon them when they reported at the Hannibal meeting.

President Gayler announced the appointment of the same members to the committee to continue the work, and the appointments were approved.

The Council appointed Dr. R. M. James, Joplin, Chairman of the General Committee on Arrangements and Dr. James proposed the name of Dr. O. T. Blanke, Joplin, as Chairman of the Local Committee on Arrangements. This nomination was approved.

The Council approves the report of the Committee on Medical Education and Hospitals and recommends to the House of Delegates that it be adopted.

The Council approves the report of the Committee on Medical Defense and recommends its adoption by the House of Delegates.

The President's recommendation in regard to publicity was referred to the Committee on Public Policy, jointly with the Committee on Postgraduate Work and the Council.

The President's recommendation in regard to nursing was referred to the Committee on Medical Economics.

The Council approves the merging of the Madison County Society with St. Francois-Iron County Medical Society.



Dr. Ralph L. Thompson, St. Louis, offered the following amendment to the By-Laws:

Amend Chapter VII, of the By-Laws, by adding a new section to be known as Section 9 to read as follows:

Sec. 9. The Committee on Cancer shall investigate the facilities provided for the care of cancer sufferers and for the study of cancer in the State of Missouri, and shall co-operate with the American Society for the Control of Cancer and other ethical organizations for cancer control, to the end that authentic information in regard to diagnosis and treatment of cancer be properly disseminated throughout the State of Missouri.

This amendment was approved by the Council and recommended to the House of Delegates for adoption.

A. R. McCOMAS, Chairman

Dr. McComas moved that the report of the Council be adopted. Seconded.

Dr. E. Lee Miller, Kansas City, introduced a resolution as a substitute for that portion of the report of the Council pertaining to the four-year course in medicine at the State University. The resolution follows:

WHEREAS, The question of the reestablishment of the teaching of the four-year course in medicine by the University of Missouri has reached the stage of approval by the Board of Curators of the University of Missouri, and

WHEREAS, This Association has persistently advocated the establishment of the four-year medical course under the most appropriate and favorable conditions, and

WHEREAS, There has been made available other desirable opportunities and facilities for adequate clinical material and instructional advantages of high character for the last two years of medical instruction outside of Columbia, therefore be it

Resolved, That the House of Delegates go on record as approving a thorough investigation of all plans suggested and to withhold approval of any plan until the investigation has been made and the merits of each thoroughly investigated so that the best available plan can be recommended for approval, and be it further

Resolved, That this investigation shall be made by a committee composed of members of the Committee on Medical Education and Hospitals of the Missouri State Medical Association, to which for the purpose of this investigation the President of the Missouri State Medical Association shall appoint four additional members if he so desire.

Dr. Miller moved the adoption of this resolution. Seconded by Dr. Jabez N. Jackson, Kansas City.

The motion was discussed by Drs. Hermon S. Major, Kansas City; Frank G. Nifong, Columbia; J. R. McVay, Kansas City; Frank I. Ridge, Kansas City, and W. T. Elam, St. Joseph.

Dr. W. T. Elam, St. Joseph, moved as a substitute for the substitute introduced by Dr. Miller that the report of the Council be amended by making the report of the Committee on Medical Education and Hospitals read "We approve the establishment of the four-year course in medicine by the State University." Seconded by Dr. Hermon S. Major, Kansas City.

Dr. E. Lee Miller, Kansas City, withdrew his substitute resolution, his second, Dr. Jabez N. Jackson, consenting.

The question was put on Dr. Elam's motion which carried.

Dr. Jabez N. Jackson, Kansas City, moved that the report of the Council as amended be adopted. Seconded and carried.

Dr. T. W. Cotton, Van Buren, reported for the Reference Committee on Miscellaneous Affairs as follows:

#### REPORT OF REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

We, your Reference Committee on Miscellaneous Affairs, have had referred to us the report of the Committee on Public Policy and the report of the Committee on Medical Economics. We have studied these reports carefully and recommend that both reports be adopted.

On motion the report of the Reference Committee on Miscellaneous Affairs was adopted.

Dr. James Stewart, Jefferson City, nominated Jefferson City as the place for holding the 1932 meeting of the Association, and presented the invitation of the Cole County Medical Society and other bodies.

Dr. E. C. Robichaux, Excelsior Springs, nominated Excelsior Springs as the next place of meeting and presented the invitation of the Clay County Medical Society and other bodies.

Dr. W. T. Elam, St. Joseph, nominated St. Joseph for the next meeting place and presented the invitation of the Buchanan County Medical Society.

A rising vote showed Jefferson City having 46 votes, Excelsior Springs 5, and St. Joseph 5. Jefferson City was declared the choice for the next place of meeting.

On motion, adjourned.

#### Wednesday, May 13, 1931—Afternoon Session

The House of Delegates convened at 3:45 p. m., Wednesday, May 13, 1931, with the President Dr. W. C. Gayler, St. Louis, in the chair.

President Gayler called for nominations for President-Elect for the ensuing year.

#### Nomination of President-Elect

Dr. H. A. Lowe, Springfield, nominated Dr. Joseph W. Love, Springfield. The nomination was seconded by Dr. Spence Redman, Platte City.

Dr. Jabez N. Jackson, Kansas City, nominated Dr. Ralph W. Holbrook, Kansas City. The nomination was seconded by Dr. W. T. Elam, St. Joseph.

Dr. Jabez N. Jackson, Kansas City, moved that the nominations be closed and that the House proceed to ballot. Seconded and carried.

President Gayler appointed Drs. J. C. B. Davis, Willow Springs, E. Lee Miller, Kansas City, and B. K. Stumberg, St. Charles, as tellers.

The ballot resulted in 38 votes for Dr. Love; 25 for Dr. Holbrook.

The President announced that Dr. Joseph W. Love, Springfield, had been elected President-Elect.

On motion of Dr. H. S. Major, Kansas City, seconded by Dr. Jabez N. Jackson, Kansas City, the election of Dr. Love was made unanimous.

Dr. J. R. McVay, Kansas City, Chairman of the Committee on Nominations, read the report of his committee as follows:

#### REPORT OF THE COMMITTEE ON NOMINATIONS

For vice presidents: Joseph Grindon, St. Louis; P. D. Gum, West Plains; B. W. Hays, Jackson.

For delegates to the American Medical Association: Delegate, Emmett P. North, St. Louis; alternate, Ross A. Woolsey, St. Louis. Delegate, E. J. Goodwin, St. Louis; alternate, W. M. West, Monett.

For councilors:

- 2nd District, W. T. Elam, St. Joseph.
- 4th District, J. B. Wright, Trenton.
- 6th District, J. S. Gashwiler, Novinger.
- 8th District, B. K. Stumberg, St. Charles.
- 10th District, D. A. Barnhart, Huntsville.
- 12th District, Spence Redman, Platte City.
- 14th District, C. T. Ryland, Lexington.
- 16th District, J. T. Hornback, Nevada.
- 18th District, W. L. Allee, Eldon.
- 20th District, R. L. Thompson, St. Louis.
- 22nd District, U. P. Haw, Benton.
- 24th District, F. L. Kneibert, Poplar Bluff.
- 26th District, W. H. Breuer, St. James.
- 28th District, W. M. West, Monett.

The appointment of Dr. N. W. Jarvis, Festus, as Councilor of the Twenty-First District, to fill the vacancy caused by the death of Dr. T. F. Estel, Altenburg, was confirmed.

Dr. J. R. McVay, Kansas City, moved that the report be adopted. Seconded by Dr. P. F. Cole, Springfield, and carried.

The President appointed Dr. T. W. Cotton, Van Buren, and Dr. R. M. James, Joplin, to escort Dr. Joseph W. Love, Springfield, to the chair.

### Remarks of President-Elect Love

DR. JOSEPH W. LOVE, Springfield: Mr. President and Members of the House of Delegates of the Missouri State Medical Association: I have answered the mandate of the Chair and presented myself to you to express in my feeble way my humble appreciation for the confidence you have reposed in me. I sincerely appreciate the honor thus conferred and while I am deeply conscious of my lack of qualifications for the office I pledge my best endeavors to uphold the ideals of the profession and to support this organization to the best of my ability.

### Installation of President Harrison

PRESIDENT GAYLER: You now see your new President who will proceed with the next order of business, the appointment of committees.

### Remarks of President Harrison

DR. J. F. HARRISON, Mexico: I do not deem this an occasion for a speech and I am sure you will be glad if I do not make one. I hope I may conduct the affairs of the office as correctly and efficiently as my predecessor.

President Harrison submitted his nominations for members of standing committees whose terms had expired. The nominations follow:

### Nominations for Standing Committees

J. E. Stowers, Kansas City, Committee on Scientific Work.  
M. P. Neal, Columbia, Committee on Postgraduate Work.  
P. D. Gum, West Plains, Committee on Public Policy.  
O. B. Zeinert, St. Louis, Committee on Defense.  
M. A. Bliss, St. Louis, Committee on Publication.  
H. P. Kuhn, Kansas City, Committee on Medical Education and Hospitals.

W. K. Trimble, Kansas City, Committee on Revision of Constitution and By-Laws.

Kerwin W. Kinard, Kansas City, Committee on Medical Economics.

Arthur R. McComas, Surgeon, and Frank G. Nifong, Columbia, Committee on Andrew Walker McAlester Memorial Foundation.

Lee D. Cady, Chairman; M. B. Clopton and H. S. Crossen, of St. Louis; F. M. McCallum, Kansas City, and L. M. Edens, Cabool, Military Committee for Contact with Surgeon General of United States Army.

Dr. Jabez N. Jackson, Kansas City, moved that the nominations announced by the President be confirmed by the House of Delegates. Seconded by Dr. H. L. Kerr, Crane, and carried.

The Secretary read the amendments to the By-Laws introduced at the session on Monday, May 11, which were now ready to be voted on, as follows:

Amend Chapter XI, Section 3, line 6, by striking out the words "is a bona fide resident of" and inserting in their place the words "resides or practices in" so that the Section when amended shall read as follows:

### Amendments to the By-Laws

Sec. 3. Each county society shall judge of the qualifications of its members, subject to review and final decision by the Council of the State Association. Every reputable and legally qualified physician who does not support nor practice nor profess to practice sectarian medicine who resides or practices in the same county, who shall apply for membership on the prescribed form and subscribe for THE JOURNAL and pay the annual dues for the current year, shall be eligible for election to membership.

Dr. Spence Redman, Platte City, moved that the amendment be adopted. The motion was seconded. Discussion by Drs. J. R. McVay, A. W. McAlester, Frank I. Ridge, H. P. Kuhn, and O. S. Gilliland, of Kansas City.

The motion was put and the amendment was adopted.

Amend Chapter VII, Section 1, by adding a new standing committee to be known as

A Committee on Cancer.

Dr. C. E. Hyndman, St. Louis, moved that this amendment be adopted. Seconded and carried.

Amend Chapter VII by adding a new section to be known as Section 9, as follows:

The Committee on Cancer shall investigate the facilities provided for the care of the cancer sufferer and the study of cancer in the State of Missouri and shall cooperate with the American Society for the Control of Cancer and other ethical organizations for cancer control to the end that authentic information in regard to diagnosis and treatment of cancer be properly disseminated throughout the State of Missouri.

Dr. W. T. Elam, St. Joseph, moved that the amendment be adopted. Seconded and carried.

The matter of stimulating the attendance at the annual meetings was discussed.

Dr. Hermon S. Major, Kansas City, moved that the officers of the Association in conjunction with the Cole County Medical Society and the Chamber of Commerce of Jefferson City work out a plan to increase the attendance at the annual meeting. Seconded by Dr. W. T. Elam, St. Joseph, and carried.

Dr. W. T. Elam, St. Joseph, moved that the Association extend a vote of thanks and congratulations to the members of the Jasper County Medical Society, to Mr. Simon, manager of the Connor Hotel, to the Chamber of Commerce and the press, for their efforts in contributing to the success of the 1931 meeting. The motion was seconded and carried unanimously by rising vote.

On motion, the House of Delegates adjourned *sine die*.

### MINUTES OF THE COUNCIL

#### Connor Hotel

#### Monday, May 11, 1931—First Session

The first meeting of the Council at the Seventy-Fourth Annual Session of the Missouri State Medical Association, held in the Connor Hotel, Joplin, Monday, May 11, 1931, was called to order by the Chairman, Dr. A. R. McComas, Surgeon, at 11:45 a. m. The Secretary called the roll and nineteen members responded as follows:

3rd District, J. A. Crockett, Stanberry.  
6th District, J. S. Gashwiler, Novinger.  
7th District, H. B. Goodrich, Hannibal.  
8th District, B. K. Stumberg, St. Charles.  
9th District, A. R. McComas, Surgeon.  
12th District, Spence Redman, Platte City.  
13th District, O. S. Gilliland, Kansas City.  
15th District, L. J. Schofield, Warrensburg.  
16th District, J. T. Hornback, Nevada.  
17th District, Guy Titsworth, Sedalia.  
18th District, W. L. Allee, Eldon.  
19th District, J. S. Summers, Jefferson City.  
20th District, Ralph L. Thompson, St. Louis.  
21st District, N. W. Jarvis, Festus.  
22nd District, U. P. Haw, Benton.  
25th District, W. W. Johnston, Farmington.  
27th District, J. C. B. Davis, Willow Springs.  
28th District, W. M. West, Monett.  
29th District, R. M. James, Joplin.

The report of the Committee on Medical Education and Hospitals was considered.

Dr. J. S. Gashwiler, Novinger, moved that the recommendations of this report be approved and recommended to the House of Delegates for adoption. Seconded and carried.

Dr. R. M. James, Joplin, moved that the recommendations of the Committee on Defense be approved and recommended to the House of Delegates for adoption. Seconded and carried.

Dr. J. S. Gashwiler, Novinger, moved that the reports of the Secretary and Treasurer be referred to the Auditing Committee. Seconded and carried.



Dr. A. R. McComas, Surgeon, Chairman, appointed the following auditing committee:

#### Auditing Committee

J. C. B. Davis, Willow Springs, Chairman.  
Guy Titsworth, Sedalia.  
J. S. Gashwiler, Novinger.

The Secretary read the recommendations in the President's Message referred to the Council by the House of Delegates.

Dr. Guy Titsworth, Sedalia, moved that the portion of the President's message referring to the four-year course in medicine at the State University be referred to the Committee on Medical Education and Hospitals. The motion was seconded by Dr. J. S. Gashwiler, Novinger, and carried.

Dr. W. W. Johnston, Farmington, moved that the recommendation in the President's message in regard to publicity be referred to the Committee on Public Policy jointly with the Committee on Post-graduate Work and the Council. The motion was seconded by Dr. J. S. Gashwiler, Novinger, and carried.

Dr. R. L. Thompson, St. Louis, moved that the portion of the President's message in regard to nursing be referred to the Committee on Medical Economics. The motion was seconded by Dr. Guy Titsworth, Sedalia, and carried.

On motion of Dr. W. M. West, Monett, seconded by Dr. J. S. Gashwiler, Novinger, and carried, the President's recommendation regarding a basic science law was referred to the Committee on Public Policy.

Dr. W. W. JOHNSTON, Farmington: Last January Madison County, which prior to that time had been one of the counties in the Twenty-Second District, applied to the St. Francois-Iron County Medical Society for affiliation and membership in that Society. There are but five men in Madison County, beyond middle life and they felt that it was out of the question for them to maintain a county organization. Some of them prior to that time had attended our meetings and felt they would profit by joining with us. The matter was taken up through the proper channels and the Madison County Medical Society was received and elected to membership in the St. Francois-Iron County Medical Society with the request that thereafter it be known as the St. Francois-Iron-Madison County Medical Society.

If it is the pleasure of this Council, I move that this action be approved. The motion was seconded by Dr. U. P. Haw, Benton, and carried.

Dr. R. M. James, Joplin, Councilor of the Twenty-Ninth District, informed the Council of the desire of some members in McDonald County to organize a county society in McDonald County. There are about seven practitioners in the county, the youngest about 58 or 60 years old. They have tried to organize on one or two occasions but without success. I have had correspondence with them but have put off approving the organization of the society until I could put the matter before the Council. They were organized and made a component society in former years but the activities did not last very long.

Dr. Charles E. Hyndman, St. Louis, Chairman of the Defense Committee, spoke of the work of his committee and particularly invited the opinion of the Council as to what attitude the Defense Committee should assume toward payment of the full amount allowed members who are sued for malpractice. He also invited the opinion of the Council upon the matter of paying the expenses of experts whom the committee invites to testify for the members. The question was discussed by Dr. H. B.

Goodrich, Hannibal; Dr. R. M. James, Joplin, and Dr. W. L. Allee, Eldon.

Dr. Allee moved that the Council approve the policy of the Defense Committee in its entirety and recommended that the committee be permitted to use its discretion in each individual case. Seconded by Dr. W. M. West, Monett, and carried.

Dr. R. L. Thompson, St. Louis, presented a resolution from Dr. Ellis Fischel, St. Louis, containing an amendment to the By-Laws to create a standing committee on cancer and defined the duties of the committee.

After discussion Dr. J. S. Gashwiler, Novinger, moved that the amendment be introduced in the House of Delegates at the afternoon session. Seconded by Dr. Ralph L. Thompson, St. Louis, and carried.

The Chairman, Dr. A. R. McComas, Surgeon, read the report of the Executive Committee.

Dr. J. S. Gashwiler, Novinger, moved that the report be accepted and that it be made the report of the Council to the House of Delegates with such additions as had been enacted at this meeting of the Council. Seconded by Dr. H. B. Goodrich, Hannibal, and carried.

The Secretary read a letter from Dr. George M. Bristow, Princeton, Councilor of the Fourth District, expressing his regret that his physical health would not permit him to be present at this session and asked that his name be not considered for reelection as Councilor of the Fourth District. Dr. Bristow further suggested that Dr. J. B. Wright, Trenton, be considered for the office as Councilor of the District.

Dr. J. S. Gashwiler, Novinger, moved that a committee of three be appointed to draw up a resolution of respect and sympathy to Dr. Bristow. The motion was duly seconded and carried and the Chairman appointed on this committee, Drs. J. S. Gashwiler, Novinger, Ralph L. Thompson, St. Louis, and B. K. Stumberg, St. Charles.

Mr. Elmer E. Bartelsmeyer, St. Louis, Executive Secretary of the St. Louis Medical Society, was called upon by the Chairman and gave the Council a brief recital of his work for the St. Louis Medical Society.

#### REPORT OF THE AUDITING COMMITTEE

Dr. J. C. B. Davis, Willow Springs, read the report of the Auditing Committee as follows:

We, the Auditing Committee, have examined the books of the Secretary and Treasurer and find them to be correct. This May 11, 1931.

J. C. B. DAVIS, Chairman  
J. S. GASHWILER  
GUY TITSWORTH

On motion the report was adopted.

On motion adjourned.

#### Wednesday, May 13, 1931—Second Session

The second meeting of the Council convened in the Connor Hotel, Joplin, Wednesday afternoon, May 13, at 5:10 p. m., the Chairman, Dr. A. R. McComas, Surgeon, presiding.

On motion of Dr. B. K. Stumberg, St. Charles, duly seconded and carried, the reading of the minutes of the previous meeting was dispensed with.

CHAIRMAN MCCOMAS: We have before us the problem of increasing the attendance. I think we would like to hear from Dr. Jackson.

DR. JABEZ N. JACKSON, Kansas City: I would suggest to the Program Committee this idea: we know by experience in Kansas City that the so-called clinics which have been held over the country have been

enormously attended. I believe we could increase our attendance and furnish to the people of the State a better program in some respects if each year we were to invite a larger number of distinguished men in the profession from elsewhere to come here and deliver addresses—not addresses limited to twenty minutes but forty-five minutes to an hour. I do not believe very many doctors come to the State Medical Association meeting for entertainment—they come chiefly for information. We have three evenings during the session, Monday, Tuesday and Wednesday. I do not wish in any way to cramp the talent of Missouri but I believe we would increase the value of the local contributions if we had also some distinguished outside talent. We had in Kansas City in the fall clinics somewhere near twelve to sixteen guests and they delivered addresses in the afternoon. In the morning and evening sessions at the hospitals the local men made addresses leaving the afternoons for our distinguished guests. It seems to me we could have on Monday, Tuesday and Wednesday probably two men of some distinction in different lines. The fact that these men are to be here would make the profession of the State realize that they are going to have something unusual presented and they would turn out. I think our attendance at Kansas City can be explained by the fact that they came to hear our distinguished guests—they were the men who drew the crowd. I would therefore suggest, without in any way curtailing the opportunities for local men to furnish papers, that we could use these idle evenings in a profitable way.

DR. FRANK G. NIFONG, Columbia: I want to accentuate what Dr. Jackson has said. I belong to a working surgical society that goes to a hotel like this and never goes out the front door until we get through. We work day and night and everybody who comes works. Entertainment is all right but I think it is time to curtail entertainment and get some distinguished guests on our program that will give us information. I vote that we try this out.

DR. JACKSON: In Kansas City we had a registration fee which is equivalent to what the doctors pay in the State Association. If they could come here without additional fee I believe they would come. In the Western Surgical Association we have no entertainment at all. We have a membership limited to 150 and probably there will be 100 of these men in their place from nine to twelve, and again in the afternoon and in the evening. I believe most medical men would prefer to come to a high-class scientific program than to be entertained in any other way. This year is the best program I have listened to in the Missouri State Medical Association. If you can have a program like this supplemented by a few distinguished men you will have all the attendance you want.

DR. G. W. HAWKINS, Salisbury: I move that the Committee on Scientific Work plan to have addresses by distinguished guests on Monday, Tuesday and Wednesday, and that the addresses of the President and President-Elect be limited to some time during the scientific program. Seconded by Dr. W. W. Johnston, Farmington, and carried.

The election of officers resulted in the reelection of the incumbents as follows:

Chairman of Council, Dr. A. R. McComas, Sturgeon.

Vice Chairman of Council, Dr. W. H. Breuer, St. James.

Treasurer of Association, Dr. G. W. Hawkins, Salisbury.

Secretary of Association, Dr. E. J. Goodwin, St. Louis.

Executive Committee: Dr. A. R. McComas, Sturgeon; Dr. W. H. Breuer, St. James; Dr. Ralph L. Thompson, St. Louis.

The matter of the Andrew Walker McAlester Foundation was discussed, and the members of the Council were urged to interest any laymen who might contribute to the Foundation.

In order to stimulate interest among laymen in health matters it was moved by Dr. W. L. Allee, Eldon, seconded by Dr. W. M. West, Monett, that the Committee on Postgraduate Course, working through parent-teacher associations and similar bodies, send out men who could make addresses to high schools. Seconded and carried.

On motion, the Council adjourned *sine die*.

## MINUTES OF THE GENERAL MEETING

Connor Hotel, Joplin, Tuesday, May 12, 1931—  
Morning Session

The first scientific session of the 74th Annual Meeting of Missouri State Medical Association convened at Joplin, Tuesday, May 12, 1931, at 8:30 a. m., the President, Dr. W. C. Gayler, St. Louis, presiding.

The following papers were read and discussed:

"Hyperthyroidism in Young Women," by Dr. Edgar D. Baskett, Columbia.

"Treatment of Thyroid Disorders With Iodine," by Dr. Kerwin W. Kinard, Kansas City.

"Dysfunction of the Thyroid Gland," by Dr. E. P. Sloan, Bloomington, Illinois.

"The Hypo-Ovarian Syndrome," by Dr. August A. Werner, St. Louis.

These papers were discussed by Drs. Willard Bartlett, Jr., St. Louis; C. Souter Smith, Springfield; D. L. Sexton, St. Louis; Drs. Baskett, Kinard, and Sloan in closing.

A paper entitled "Selective Pneumothorax: A Review of the Literature and a Report Based Upon the Study of 89 Cases," by Drs. A. C. Henske and C. W. Ehlers was read by Dr. Henske.

Dr. James L. Mudd, St. Charles, read a paper entitled "Surgery of Pulmonary Tuberculosis."

These two papers were discussed by Drs. Sam Snider, Kansas City; Charles W. Greene, Columbia; W. T. Coughlin, St. Louis; J. W. Barson, Joplin; W. W. Buckingham, Kansas City; Alphonse McMahon, St. Louis; Drs. Henske and Mudd in closing.

Dr. C. Wilbur Mercer, Kansas City, presented a paper on "Tuberculosis of Joints: Conservative Plan of Treatment With Presentation of Patients."

Dr. Howard H. Bell, St. Louis, read a paper entitled "Search for Tuberculosis in School Children: Importance to the Child, to the Parent, and to the Community."

Dr. Scott P. Child, Mount Vernon, gave a paper on "Tuberculosis in Children: Its Diagnosis and Prognosis."

Dr. George D. Kettelkamp, St. Louis, presented a paper on "Determination of Activity in Tuberculosis."

These papers were discussed by Dr. C. C. Dennie, Kansas City; Drs. Mercer and Child closing.

On motion the Tuesday morning session adjourned.

## Tuesday, May 12, 1931—Afternoon Session

The second scientific session of the Annual Meeting convened Tuesday afternoon at 1:30 o'clock, the President, Dr. W. C. Gayler, St. Louis, presiding.



The following papers were read in the Symposium on Traumatic Surgery:

"Diagnosis and Management of Trauma of the Brain," by Dr. F. R. Teachenor, Kansas City.

"Diagnosis and Management of Injuries to the Chest," by Dr. O. B. Zeinert, St. Louis.

"Diagnosis and Management of Injuries to the Abdomen," by Dr. Robert F. Hyland, St. Louis.

These papers were discussed by Drs. W. T. Coughlin, St. Louis; R. A. Woolsey, St. Louis; Hudson Talbott, St. Louis; Drs. F. R. Teachenor and Robert F. Hyland in closing.

Dr. E. P. Heller, Kansas City, read a paper entitled "Recent Additions to the Armamentarium for Fracture Reduction and Retention."

Dr. J. Edgar Stewart, St. Louis, read a paper on "Treatment of Fractures of the Upper End of the Femur."

Discussion by Drs. Frank G. Nifong, Columbia; J. T. Hornback, Nevada; Drs. Heller and Stewart in closing.

Dr. Alton Ochsner, New Orleans, Louisiana, read a paper entitled "Intestinal Obstruction."

This paper was discussed by Drs. Willard Bartlett, Jr., St. Louis; Jabez N. Jackson, Kansas City; Thomas G. Orr, Kansas City; Frank G. Nifong, Columbia; B. L. Myers, Kansas City. Dr. Ochsner closed the discussion.

Dr. E. Lee Dorsett, St. Louis, read a paper on "Breech Presentation."

Dr. George F. Pendleton, Kansas City, read a paper entitled "Bandl's Ring."

Dr. S. A. Grantham, Joplin, read a paper on "Spinal Fusion by the Tunneling Method." The paper was illustrated with motion pictures of patients who had been treated by this method and several patients were presented.

On motion the Tuesday afternoon session adjourned.

#### Tuesday, May 12, 1931—Evening Session

The third session of the Annual Meeting convened on the roof of the Connor Hotel, May 12, 1931, at 7:30 p. m. This was an open session and a large audience was gathered to hear the addresses.

President W. C. Gayler delivered his presidential address under the title "Rapid Changes in Thirtv Years."

President-Elect J. F. Harrison, Mexico, spoke briefly on the activities of the Association.

Dr. Morris Fishbein, Chicago, editor of *The Journal of the American Medical Association*, delivered an address entitled "The Trend of Medical Practice."

Dr. Alton Ochsner, New Orleans, professor of surgery at Tulane University Medical School, gave an address on "What One Should Expect of the Physician and Surgeon."

At the conclusion of these addresses the meeting adjourned.

#### Wednesday, May 13, 1931—Morning Session

The fourth scientific session of the Annual Meeting convened at 8:30 a. m., the President, Dr. W. C. Gayler, St. Louis, presiding.

The following papers were read in the Symposium on Appendicitis:

"Definite Appendiceal Symptomatology," by Dr. Walter Baumgarten, St. Louis.

"Postoperative Complications of Appendicitis," by Dr. D. S. Conley, Columbia.

"Causes of High Mortality in Appendicitis," by Dr. H. A. Lowe, Springfield.

"When Not to Operate on a Case of Acute Appendicitis," by Dr. E. Lee Miller, Kansas City.

"Treatment of Appendicitis in Its Two Phases:

Before and After Perforation," by Dr. J. E. Stowers, Kansas City.

"The So-Called Chronic Appendix," by Dr. A. E. Hertzler, Kansas City.

"As a Pathologist Views the Appendix," by Dr. F. C. Helwig, Kansas City.

These papers were discussed by Drs. M. P. Neal, Columbia; Hudson Talbott, St. Louis; Wilbur Smith, Springfield; Ola Putnam, Marceline; Alton Ochsner, New Orleans, Louisiana; Drs. Baumgarten, Hertzler, and Lowe, in closing.

Dr. G. S. Foster, Manchester, New Hampshire, read a paper entitled "Some Facts in Regard to Surgical Shock."

"Early Diagnosis and Treatment of Acute Anterior Poliomyelitis," was the title of a paper contributed by Drs. Carl R. Ferris, B. Landis Elliott, and Paul F. Stookey, of Kansas City, Dr. Ferris reading the manuscript.

This paper was discussed by Drs. H. M. Gilkey, and G. Wilse Robinson, Jr., of Kansas City; Dr. Ferris, in closing.

Dr. James Harvey Jennett, Kansas City, read a paper on "Persistent Hereditary Edema of the Legs—Milroy's Disease."

On motion adjourned.

#### Wednesday, May 13, 1931—Afternoon Session

The fifth scientific session convened Wednesday at 1:30 p. m., Dr. W. C. Gayler, St. Louis, presiding.

The following papers were read in the Symposium on Heart Disease:

"The Control of the Coronary Arterial Blood Supply in Relation to Angina," by Charles W. Greene, Ph.D., Columbia.

"Prognosis of Heart Disease," by Dr. Ralph W. Holbrook, Kansas City.

"The Clinical Picture of Heart Disease," by Dr. P. T. Bohan, Kansas City.

"Treatment of Heart Disease," by Dr. A. E. Strauss, St. Louis.

"Mechanical Aids in Diagnosis of Heart Disease," by Dr. S. B. Grant, St. Louis.

Discussion by Dr. Sinclair Luton, St. Louis, Drs. Greene and Strauss closing.

Dr. Dudley A. Robnett, Columbia, read a paper entitled "Hernia of the Bladder."

On motion adjourned.

#### Thursday, May 14, 1931—Morning Session

The sixth scientific session convened Thursday morning at 9 o'clock, the newly installed President, Dr. J. F. Harrison, Mexico, presiding.

Dr. Julius Lingenfelder, Hermann, read a paper entitled "The General Practitioner, Guardian of Public Health."

This paper was discussed by Dr. J. S. Summers, Jefferson City.

Dr. Otto J. Wilhelmi, St. Louis, read a paper on "Nonvenereal Prostatitis."

Discussion by Dr. C. D. Humbert, Barnard, Dr. Wilhelmi in closing.

Dr. Jabez N. Jackson, Kansas City, presented a paper entitled "The Modern Operation for Cancer of the Breast."

This paper was discussed by Drs. Hermon S. Major, Kansas City; E. P. Sloan, Bloomington, Illinois; Claude J. Hunt, Kansas City; Julius Rotter, Parsons, Kansas; Dr. Jackson closing.

Dr. O. S. Gilliland, Kansas City, read a paper on "Sinusitis in Children."

This paper was discussed by Drs. Paul Lux, Kansas City; M. F. Arbuckle, St. Louis; Dr. Gilliland closing.

Dr. M. F. Arbuckle, St. Louis, presented a paper entitled "Headache: Its Cause and Relief."

Discussion by Drs. William H. Luedde, St. Louis; W. L. Post, Joplin; Paul Lux, Kansas City; Dr. Arbuckle closing.

Dr. Joseph W. Love, Springfield, read a paper on "Massive, Spontaneous Hemorrhages Into the Vitreous Humor, and Iritis Both Eyes, Accompanying the Schönlein-Henoch Syndrome: Report of a Case."

This paper was discussed by Dr. William H. Luedde, St. Louis.

Dr. C. Souter Smith, Springfield, read a paper entitled "Basal Metabolism in Middle Ear Catarrh."

The paper was discussed by Drs. M. F. Arbuckle, St. Louis, and Paul Lux, Kansas City.

Drs. C. E. Rice and J. E. Smith, of Rolla, were joint authors of a paper on "Trachoma in Missouri." The paper was read by Dr. Rice and discussed by Drs. William H. Luedde, St. Louis, and C. P. Dyer, Webster Groves.

On motion adjourned.

#### Thursday, May 14, 1931—Afternoon Session

The sixth and final session convened Thursday at 1:40 p. m., the newly elected President-Elect, Dr. Joseph W. Love, Springfield, presiding.

Mr. L. H. Cramblet, representing Petrolagar Laboratories, Chicago, presented motion pictures of Anatomy and Physiology prepared by Drs. H. B. Kellogg and W. F. Windle, of the Department of Anatomy, Northwestern University, Chicago. The exhibition of these pictures was given through the courtesy of the Petrolagar Laboratories.

Dr. Claude J. Hunt, Kansas City, read a paper on "Carcinoma of the Colon: Report of Occurrence in Young Adult."

Drs. C. E. Gilliland and E. Sigoloff, St. Louis, were joint authors of a paper entitled "The Irritated Colon (Spastic Colon)." The paper was read by Dr. Gilliland and discussed by Dr. Carl R. Ferris, Kansas City; Dr. Gilliland closing.

Dr. Paul C. Schnobelen, St. Louis, presented an "Improved Method of Early Diagnosis of Defects in the Colon." The presentation was illustrated with numerous roentgenograms made in series on various patients.

Dr. Lee Pettit Gay, St. Louis, read a paper entitled "Abdominal Allergy."

Dr. O. H. McCandless, Kansas City, read a paper on "Epithelioma."

Dr. William R. Beatie, Springfield, presented a paper entitled "True Pruritus Ani."

On motion the 74th Annual Meeting of the Missouri State Medical Association adjourned *sine die*.

#### TWENTY-THIRD ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES

##### Wednesday, May 13, 1931—Connor Hotel

The Twenty-Third Annual Meeting of the Missouri Society of Medical Secretaries was held in the Gold Room of the Connor Hotel, Joplin, Wednesday evening, May 13, 1931, the President, Dr. C. D. Humberd, Barnard, acting as toastmaster.

Dr. Charles D. Humberd, Barnard, President, called the attention of the county secretaries to the Quarterly Cumulative Index Medicus, published at a financial loss by the American Medical Association. Since this invaluable publication is so worthy of every medical worker's attention and support, it is highly desirable that every county medical society should be represented by

a subscription either from the society or from the secretary personally. From experience he had found that the members of his own society made great use of the copy for which he subscribed and the periodical articles which it made available.

I will now call on our President, Dr. W. C. Gayler, St. Louis, for an address.

DR. GAYLER: Mr. Chairman, Ladies and Gentlemen: I have talked so much that I am tired of the sound of my own voice, and I think you are, too, so I will make this short.

Nowhere have I seen such a beautiful spirit of fellowship manifested as during this meeting. Never have we been so cordially welcomed and entertained as at this State Meeting. I rather dreaded to come down here. I did not know how it would be to call this organization to order and tell them what to do, but I can say now that it has been a great pleasure to preside at this meeting.

That is all I ought to say, but there is one other thing in my mind. You secretaries come in contact with the members. You do the hard work. And I imagine the question that is asked you more than any other is this: "I do not get much for the \$8 I pay the State Association. What do I get?" You tell them about the Medical Defense Committee, and they say, "I knew you were going to say that, but that is not what I mean. Why do you permit irregular practitioners, osteopaths and others, to practice medicine, to take out tonsils and operate and get some of the desirable work that should go to the profession? Why doesn't the State organization put an end to that thing right away?" It is the impression that the State Association can put an end to such things—but they cannot. If you ask them how they would go about it they say, "Well, you have a legislative committee that goes to Jefferson City; can't they do anything with the legislature?" No, we cannot do anything yet to restrict the activity of the cults, but we should not criticize the legislative committee. Then they say, "Well, there is a shortage of physicians. We ought to supplant these irregulars with a large number of well-trained physicians and get rid of them by purely competitive methods." But that is not our function. It takes millions of dollars to start a medical school. Our schools have high standards, and if you wait thirty or forty years we may have more schools and gradually eliminate the men with no educational background. Meanwhile, only one method remains, and that is to educate the public. The public is on a higher plane intellectually than it formerly was. If things are properly explained the people can grasp them. When the public thoroughly understands that the irregular practitioners have had no premedical education, that their schools are not on as high a plane,—do not have the high ideals of ours—when that is thoroughly explained to them we need not fear competition. But at the present moment that is the only weapon we have—the education of the public.

DR. C. D. HUMBERD, Barnard: We will now have an address by Dr. J. J. Gaines, Excelsior Springs, Secretary, Clay County Medical Society.

DR. J. J. GAINES: Our President has said a great deal in a few words. I will not try to say much. I did think I would talk about the importance of this organization, about the secretary as the corner-stone of the organization, but Dr. Humberd said he did not want an organ recital so I shall not speak of that



tonight. I debated whether I should speak instructively or entertainingly, but I do not think you need instruction, so I shall devote my short time to entertaining you.

I am the author of one book and in that book I pay tribute to the Ozark mountains so I will read that tribute:

### The Ozarks

God finished 'em; what other Bein' could?  
An' that He loved 'em, none will dare deny.  
Omnipotence caressed, reviewed 'em, called 'em good,  
Then lifted 'em gently upward toward the sky,  
Then left 'em here, as if to  
Guide His hand in what it might devise;  
And for His weary creatures thus He made  
This mundane Paradise.

Draw near, O fainting heart, to this enchanted realm—  
Bend not the knee to blind, unreasoning Fate.  
From tremulous hands will angels take the helm,  
And steer yer bark to where revetments wait—  
Health, happiness, complete and unalloyed—  
No wiser gift, nor more benign bequest;  
Well-spring of Romance—balm for the aching void,  
And for the weary, rest!

Poet of pure legend, lore, the Psalmist's dream,  
The whistling birds, noisy pools and rippling stream,  
Cooled by the breath of Heaven—everywhere—  
Here may the wayworn traveller feast his eyes,  
Cherish the sunbeam till the starry eve;  
Slumber—within the gates of Paradise—  
And waken to achieve!

God finished 'em—and loved 'em, therefore we  
His children—lingering here to play  
'Round our Father's doorstep, recollect that He  
Cautioned us not to go far away,  
Nor to get lost amid the heartless clashin'  
Of self-inspired, well-tempered human ills—  
But to revere, with native, inborn passion,  
These matchless Ozark hills!

### Gloom in Cidervale

There was sorer in the household, an' dismay about the street.  
For out-and-out discouragement you never seen the beat!  
We could feel the gloom possess us, as the shadders settled  
thick—  
The best of us were shaky-like, when  
Doc took sick!

There aint no judgment keener than the one that carries dread,  
An' leaves a feller with a sort of buzzin' in the head;  
But the fact that seemed to paralyze the feelin's of the town  
An' hold 'em in suspension was—when  
Doc took down!

We hadn't seemed to realize that he, like other men,  
Was subject to infirmities that might attack him when  
He braved the pesky water mites, an' went on double quick,  
An' it mighty nigh kerflummexed us—when  
Doc took sick!

The blacksmith an' the postmaster, the jestice of the peace  
(Old Jasper Hawkes was all of 'em—and chief of the perleece)  
He tried to bear up mightily, but the whole durn town  
Could read despair all over him—when  
Doc took down!

The general fund of helplessness was mountin' toward the sky—  
The thirst was so persistent that it choked us, mighty nigh;  
Anyone who offered whiskey—we met it with a frown,  
An' the rattlesnakes quit bitin' us—when  
Doc took down!

Them rattlesnakes! the curus critters, why they'd  
Quile up day and night.  
Right in the streets of Cidervale—you couldn't make 'em bite.  
But along about Thanksgivin', after Doc got well,  
They rolled back into normalcy—an'  
Bit like hell!

DR. HUMBERD: We will now hear from our genial Chairman of the Council, Dr. A. R. McComas, Surgeon.

DR. A. R. MCCOMAS: One of the things we took up this afternoon was a means by which the organization known as the Andrew Walker McAlester Foundation could function under the guidance of the State Medical Association. I see some young men here, and I see some of my old friends. The older members will remember the kindly gentleman in whose honor this Foundation, this memorial, was established. For the younger members I would say, learn more about this wonderful man. He was a kindly gentleman, a real doctor, a gentleman of the old school, a man who had the good of his community and his State at heart. He lived a long, useful and active life, and in his declining years he stressed to all those with whom he came in contact the idea of service which he had so nobly exemplified in his life. In the entire summing of the activities of his whole life, service predominated. He was the first state health commissioner of Missouri, working without compensation. He had a great idea of an organization to carry health subjects to the laity of the State. Therefore those of us who were interested in forming this Foundation as a memorial chose as our idea his ideal, "education," carrying medical truths to the laity. It is defined specifically. Therefore this should be of interest to you men, secretaries of the various counties, that this truth be carried there—for what? Because we are servants; our chief aim is service, and if by education of your people in the counties which you serve so well you can carry to them the truths on which health living is based, and also the truth of the nature, the beginning and cause of disease, you have done a very, very noble service. Therefore, in discussion in the Council this afternoon a plan was suggested by which men who can speak in the language of those whom they attempt to address and teach, shall have opportunity to tell them some of the basic principles of health and disease, giving them the right principles, the right foundation for right thinking.

Dr. Gayler spoke of the things that had been most impressed upon him during his term of service as President, and that the question asked by men over the State is, "Why are cults and quacks allowed to come into a community to practice and ply their calling?" The answer is this: on account of the ignorance of the people as to the right principles of health and disease. Therefore, if you could educate the people on these correct principles the cults would vanish as snowflakes in the sun. Education of the doctors will not produce that. When we raised the standards of medical education, what happened? You could not count on the fingers of both hands the number of cults that sprang up. That is not the solution. In the wisdom of this father of medicine, Dr. McAlester, the solution is to educate the people, and these are the principles on which the Andrew Walker McAlester Foundation is established. We will attempt to carry out, under the guidance and help of the Association and with your cooperation, the principles so rightly and clearly enunciated in his lifetime.

The following officers were elected for the ensuing year: President, Dr. C. D. Humbert, Barnard; vice president, Dr. O. T. Blanke, Joplin; secretary, Dr. J. T. Hornback, Nevada.

On motion the meeting adjourned.

## REGISTRATION AT SEVENTY-FOURTH ANNUAL MEETING

Joplin, May 11-14, 1931

- \*Adamson, A. H., Arcadia, Kans.  
Allee, W. L., Eldon  
Allen, C. J., Rich Hill  
Anderson, Finis, Springfield  
Altham, A. G., Nevada  
Artuckle, M. F., St. Louis  
Armstrong, John H., Kirkwood  
Bailey, Fred W., St. Louis  
\*Ball, O. H., Dennis, Kans.  
Balsley, Clyde M., Joplin  
Barger, James N., Albany  
Barnard, William C., Seneca  
Barson, J. W., Joplin  
\*Bartelsmeyer, E. H., St. Louis  
Bartlett, Willard, Jr., St. Louis  
Baskett, Edgar D., Columbia  
Baumgarten, Walter, St. Louis  
Baysinger, S. L., Rolla  
Beckemeyer, William A., Sedalia  
Bell, Howard H., St. Louis  
Berrey, R. W., Mexico  
Bills, Marvin L., Kansas City  
Blanke, O. T., Joplin  
\*Boese, A., Coffeyville, Kans.  
\*Bogle, H. H., Pittsburg, Kans.  
Bohan, P. T., Kansas City  
\*Boswell, J. H., Baxter Springs, Kans.  
\*Bradshaw, J. O., Welch, Okla.  
Braecklein, William A., Higinville  
\*Brookhart, H. H., Columbus, Kans.  
\*Brooksher, William R., Jr., Fort Smith, Ark.  
Broyles, Watkins A., Eagleville  
Bruce, John R., Marshfield  
Bruner, Claude R., Columbia  
Bruton, T. S., Springfield  
Buck, S. B., Anderson  
Buckingham, William W., Kansas City  
Burch, Edward J., Carthage  
Burke, John P., Jr., California  
Burke, Walter H., Springfield  
Busiek, Urban J., Springfield  
Byler, Wm. F., Kansas City  
Caldwell, Chas. W., Slater  
Callaway, Guy D., Springfield  
Campbell, A. J., Sedalia  
Capell, Clarence S., Kansas City  
Castles, John E., Kansas City  
Cheatham, R. F., Diamond  
Chenoweth, J. A., Joplin  
Chenoweth, L. C., Joplin  
Child, Scott P., Mount Vernon  
Clark, A. Benson, Joplin  
Clark, W. A., Jefferson City  
Clinton, L. B., Carthage  
Cole, Paul F., Springfield  
Conley, Dudley S., Columbia  
Coombs, M. O., Joplin  
Cotton, T. W., Van Buren  
Coughlin, W. T., St. Louis  
Crabtree, Robert E., Butler  
Craig, W. E., Joplin  
\*Cramblet, L. H., St. Louis  
Crockett, James A., Stanberry  
Cullers, Daniel E., Neosho  
\*Cullum, A. B., Chanute, Kans.  
Cummings, C. C., Joplin  
Davis, C. B., Walker  
Davis, J. C. B., Willow Springs  
Dawson, J. W., Eldorado Springs  
\*Deal, F. E., Weir, Kans.  
Delamater, Geo. A., Rich Hill  
Delzell, W. A., Springfield
- DeTar, B. E., Joplin  
Denny, R. B., Creve Coeur  
\*DeVilbiss, E. F., Kansas City  
Dewey, J. E., Springfield  
Dodson, John F., Kirksville  
Dorsett, E. Lee, St. Louis  
Donaldson, C. O., Kansas City  
Donglass, J. D., Webb City  
Dowell, Donald M., Chillicothe  
Dowell, George S., Braymer  
Dumbauld, B. A., Webb City  
Duncan, Ralph E., Kansas City  
Dyer, C. P., Webster Groves  
Dyer, David P., Sedalia  
\*Eddleman, A. G., Liberal  
Edens, L. M., Cabool  
Edmondson, John L., Stella  
\*Ehlers, Chas. W., St. Louis  
Elam, W. T., St. Joseph  
Elliott, B. Landis, Kansas City  
Engman, Martin F., Jr., St. Louis  
Fallet, Chas. E., DeSoto  
Farthing, R. R., Ozark  
Feller, C. E., Springfield  
Ferguson, A. D., Fulton  
\*Ferrell, T. E., Kansas City  
Ferris, C. R., Kansas City  
Fessenden, Ersel M., Springfield  
\*Fishbein, Morris, Chicago  
\*Foster, G. S., Manchester, N. H.  
Francka, W. F., Hannibal  
Freeman, Samuel F., Springfield  
Freeman, S. L., Kirksville  
Frick, J. Paul, Kansas City  
Frischer, Julius E., Kansas City  
\*Fuller, C. C., Columbus, Kans.  
Gaines, John J., Excelsior Springs  
Gashwiler, J. S., Novinger  
Gay, Lee Pettit, St. Louis  
\*Gilbert, A. A., Fayetteville, Ark.  
Gilkey, Harry M., Kansas City  
Gilliland, C. E., St. Louis  
Gilliland, O. S., Kansas City  
Glenn, J. E., St. Louis  
Good, John W., Fordland  
Goodrich, Howard B., Hannibal  
Gradwohl, R. B. H., St. Louis  
Grant, Samuel B., St. Louis  
Grantham, S. A., Joplin  
\*Greene, C. W., Columbia  
Gum, P. D., West Plains  
Gunn, A. J., Versailles  
Gunn, W. G., Versailles  
Hall, Frank J., Kansas City  
\*Hall, F. W., Kansas City  
\*Hampton, J. B., Commerce, Okla.  
Hardy, John W., Sumner  
Harrell, R. E., Urbana  
Harrison, J. F., Mexico  
Hartwell, Basil O., Drexel  
Harutun, M. B., Joplin  
Harwell, J. Lee, Poplar Bluff  
Hatcher, E. D., Carthage  
Haw, U. P., Benton  
Hawkins, G. W., Salisbury  
Hayden, John G., Kansas City  
Hays, Bernard W., Jackson  
Hayward, John D., St. Louis  
H'Doubler, F. T., Springfield  
Heller, Edward P., Kansas City  
Helwig, F. C., Kansas City  
Henske, Andrew C., St. Louis
- \*Henson, John, Mound Valley, Kans.  
\*Herring, H. G., Le Roy, Kans.  
Hertzler, A. E., Kansas City  
Hill, Daniel R., Joplin  
\*Hire, Harry E., St. Louis  
Hogg, Garrett, Springfield  
Holbrook, Ralph W., Kansas City  
Hornback, E. R., Joplin  
Hornback, J. T., Nevada  
Horst, O. C., Springfield  
Horton, W. H., Pineville  
Hoshaw, U. G., Joplin  
Huffman, K. B., Joplin  
Humberd, Chas. D., Barnard  
\*Hummel, L. G., Chadwick  
Hunt, Claude J., Kansas City  
\*Huntington, R. H., Eureka Springs, Ark.  
Hyland, Robert F., St. Louis  
Hyndman, C. E., St. Louis  
\*Ilff, W. H., Baxter Springs, Kans.  
Jackson, Jabez N., Kansas City  
\*Jacoby, J. S., Commerce, Okla.  
James, E. D., Joplin  
James, Luther S., Blackburn  
James, R. M., Joplin  
Jarvis, N. W., Festus  
Jennett, J. Harvey, Kansas City  
\*John, J. F., Eureka Springs, Ark.  
Johnson, E. L., Concordia  
Johnson, Grover C., Marthasville  
\*Johnson, L. D., Chanute, Kans.  
\*Johnson, W. N., Columbus, Kans.  
Johnston, Wm. W., Farmington  
Jolley, J. Frank, Mexico  
Jones, A. B., Kansas City  
\*Judge, J. T., St. Louis  
Kelley, James H., Jr., Springfield  
Kennedy, T. R., St. Louis  
Kerr, H. L., Crane  
Kettelkamp, G. D., St. Louis  
Kieffer, Roland S., St. Louis  
Kinard, Kerwin W., Kansas City  
Klingner, Thomas O., Springfield  
Knabb, Arthur D., Springfield  
Knabb, Frank P., Valley Park  
Kneibert, F. L., Poplar Bluff  
Koch, Otto W., Clayton  
Krause, Irl B., Jefferson City  
Krebs, F. J. V., St. Louis  
Krehbiel, Bertrand I., St. Louis  
Kuhn, Harold P., Kansas City  
Kynner, Thomas A., Kansas City  
LaForce, H. A., Carthage  
Lamar, F. C., Kansas City  
Lamson, Roy C., Neosho  
\*Lazenby, B. F., Treece, Kans.  
Leaming, H. A., Joplin  
Lemoine, Albert N., Kansas City  
Lingenfelder, Julius, Hermann  
Liston, E. H., Nevada  
Love, Joseph W., Springfield  
Loveland, W. S., Joplin  
Lowe, H. A., Springfield  
\*Lowdermilk, R. C., Galena, Kans.  
Luedde, William H., St. Louis  
Lutman, H. N., Versailles
- Lux, Paul, Kansas City  
Macdonnell, Carey R., Marshfield  
McAlester, Andrew W., Kansas City  
McCandless, Oliver H., Kansas City  
McCann, J. P., Springfield  
McComas, A. R., Sturgeon  
McComb, James A., Lebanon  
McCormack, G. C., Joplin  
McGaughey, H. H., Joplin  
\*McKinney, Wm., Baxter Springs, Kans.  
McMahon, Alphonse, St. Louis  
McVay, James R., Kansas City  
Mack, Mary L., Joplin  
Major, Hermon S., Kansas City  
Maness, Chas. E., Neosho  
Mantz, Herbert L., Kansas City  
Marshall, A. H., Charleston  
Martin, C. G., Joplin  
Martin, Wm. T., Albany  
\*Martz, D., St. Louis  
Mercer, C. W., Kansas City  
Meredith, Guy D., Joplin  
Meyer, C. Bertram, Springfield  
Miller, E. Lee, Kansas City  
Miller, S. H., Joplin  
\*Miller, J. F., Chicago  
Miller, T. F., Lamar  
Mitchell, Ernest, Monett  
Mitchell, S. E., Malden  
Monroe, A. E., Sedalia  
Montgomery, J. G., Kansas City  
Moody, E. E., Joplin  
Morse, Frank L., St. Louis  
Mudd, James L., St. Louis  
Murphy, Franklin E., Kansas City  
Musick, J. D., Springfield  
Myers, B. L., Kansas City  
Myers, G. T., Macks Creek  
Myers, Roy E., Joplin  
Neal, M. Pinson, Columbia  
Neff, Robert L., Joplin  
Neilson, Chas. H., St. Louis  
Newlon, John S., Butler  
\*Newman, C. S., Pittsburg, Kans.  
Nifong, Frank G., Columbia  
North, Emmett P., St. Louis  
\*Ochsner, Alton, New Orleans  
\*O'Keefe, D. E., Kansas City  
Oliver, Everett A., Richland  
O'Malley, W. F., Webster Groves  
Orr, Thomas G., Kansas City  
Osborn, Charles D., Otterville  
Overholser, M. P., Harrisonville  
Padgett, E. C., Kansas City  
Pare, Elijah Y., Leeton  
\*Parker, J. R., Eureka Springs, Ark.  
\*Parrish, W. A., Mulberry, Kans.  
Parrish, J. C., Vandalia  
Patterson, William P., Springfield  
Patton, W. G., St. Louis  
Pendleton, G. F., Kansas City  
\*Pettet, J. D., Arcadia, Kans.  
\*Petty, C. N., Altamont, Kans.  
Poor, Carl William, Wheaton  
Popplewell, W. H., Lamar  
Post, Winfred B., Carthage  
Post, Winfred L., Joplin  
Powers, Everett, Carthage  
Powers, H. C., Joplin

\*Visitor



Powers, John A., Warrensburg  
 \*Poyner, G. V., South West City  
 Pranger, Sylvester H., St. Louis  
 Pritchett, Paul L., Webb City  
 Putman, O., Marceline  
 Reynolds, J. R., Neosho  
 \*Rice, C. E., Rolla  
 Ridge, Frank I., Kansas City  
 Robichaux, E. C., Excelsior Springs  
 Robinson, G. Wilse, Kansas City  
 Robinson, G. Wilse, Jr., Kansas City  
 Robinson, John L., Kansas City  
 Robnett, Dudley A., Columbia  
 Roebber, H. M., Bonne Terre  
 Rolens, L. A., Granby  
 Roseberry, E. C., Springfield  
 Rothwell, John H., Liberty  
 \*Rotter, J. Parsons, Kans.  
 Russell, James M., Monett  
 Russell, Richard L., Jefferson City  
 Rutledge, John F., Crystal City  
 \*Ramsey, L. C., Kansas City  
 Redman, Spence, Platte City  
 Rehfeldt, Charles S., St. Louis  
 Sale, Onal A., Neosho  
 Sampson, John H., St. Joseph  
 Schmidt, Herbert H., Marthasville  
 Schnoebelen, Paul C., St. Louis  
 \*Schofield, L. J., Warrensburg  
 Schulz, A. P. Erich, St. Charles  
 Scott, John C., Lebanon  
 Sexton, Daniel L., St. Louis  
 Sharp, William L., St. Louis  
 Shaver, H. H., Kansas City  
 Shaw, Wm. J., Fayette  
 Shelton, M. C., Joplin  
 Shelton, Prior, Kansas City  
 \*Sherburne, H., Kansas City  
 Shutt, Cleveland H., St. Louis  
 Simpson, Morris B., Kansas City  
 Simmons, LeRoy, Sarcoxie  
 Sims, John, Joplin  
 \*Sloan, E. P., Bloomington, Ill.  
 Slocumb, Leith H., St. Louis  
 Smith, C. K., Kansas City  
 Smith, C. Souter, Springfield  
 \*Smith, J. E., Rolla  
 Smith, Wallis, Springfield  
 Smith, Wilbur, Springfield  
 Snider, Sam H., Kansas City  
 Spaulding, W. B., Plattsburg  
 \*Staples, J. H. L., Blue-jacket, Okla.

Stevens, Roy U., Kansas City  
 \*Stevenson, O. E., Oswego, Kans.  
 Stewart, James, Jefferson City  
 Stewart, J. Edgar, St. Louis  
 Stokes, Julius B., Mt. Vernon  
 Stormont, R. M., Webb City  
 Strauss, Arthur E., St. Louis  
 Stumberg, B. Kurt, St. Charles  
 Suddarth, Chas. H., Excelsior Springs  
 Summers, Joseph S., Jefferson City  
 Talbott, Hudson, St. Louis  
 Teachenor, Frank R., Kansas City  
 Tesson, J. A., Kansas City  
 Thiele, George H., Butler  
 \*Thompson, J. C., Kansas City  
 Thompson, Ralph L., St. Louis  
 Thornburgh, A. H., West Plains  
 Tiernon, Luke B., St. Louis  
 Titsworth, Guy, Sedalia  
 Todd, Thomas B., Nevada  
 Upshaw, P. O., Springfield  
 \*Upshaw, P. W., Galena, Kans.  
 Vinyard, George W., Cape Girardeau  
 Vinyard, Robert, Springfield  
 \*von Trebra, E. L., Chetopa, Kans.  
 \*von Trebra, R. L., Chetopa, Kans.  
 Walker, Paul, Joplin  
 Wakeman, J. Newton, Springfield  
 Webster, Roger W., Carthage  
 Weir, E. F., Meadville  
 Welch, Albert J., Kansas City  
 Werner, August A., St. Louis  
 West, Wm. M., Monett  
 Whitaker, Walter M., Boonville  
 White, Edwin C., Kansas City  
 Wilhelmi, Otto J., St. Louis  
 Wilbur, Herbert L., Joplin  
 \*Wilkening, W. T., Ft. Scott, Kans.  
 Williams, John W., Jr., Springfield  
 Williams, Porter E., Kansas City  
 Williams, R. F., Springfield  
 Wise, H. J., Sparta  
 Wood, George, Carthage  
 Woolsey, R. A., St. Louis  
 Yancey, E. F., Sedalia  
 York, William B., Sarcoxie  
 Zeinert, Oliver B., St. Louis  
 Total, 378.

courtesy of the Postgraduate Committee of the State Medical Association.

In a paper on "The Treatment of All Forms of Syphilis by Malarial Inoculation," Dr. C. C. Dennie, Kansas City, very graphically described the results obtained in treating syphilis of the central nervous system, bone and skin by inoculation with malaria. His results in all forms of syphilis were striking. He outlined the contraindications for this form of therapy and included endarteritis, cirrhosis of the liver, hypertension, and age over 50 years. His discourse was greatly enjoyed and much appreciated.

Dr. Frank J. Hall, Kansas City, read a paper on "Infections of the Mouth and Throat." He discussed the proper methods of obtaining cultures from the mouth and throat and devoted a few minutes to staining technic. He then discussed the different clinical types of mouth and throat infection, and showed several lantern slides. Dr. Hall's paper was extremely interesting and practical and was followed by a general discussion of many clinical problems in which the members and guests participated.

A portion of the program was given over to a round-table discussion opened by Dr. C. W. Luter, Adrian, who talked on "The Differential Diagnosis of the Causes of Vomiting." His talk was extremely well presented and well received.

Dr. John S. Newlon, Butler, followed Dr. Luter in the round-table discussion, the first portion of his remarks being devoted to reminiscences. He then presented a case of aphonia of undetermined etiology.

Dr. F. M. Grogan, Nevada, was elected a member of the Vernon-Cedar County Medical Society by transfer from St. Louis Medical Society.

Following a vote of thanks to the guest speakers, sandwiches and coffee were served and the meeting adjourned.

GEORGE H. THIELE, M.D., Secretary.

#### CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met March 12, at Harrisonville. Dr. M. P. Overholser, president, presided at the meeting.

A talk on 4H Club work was given by Miss Margaret Nelson. The Society agreed to assist Miss Nelson by giving the members of 4H Clubs health examinations.

The scientific program consisted of three interesting papers, as follows:

Dr. L. V. Murray, Pleasant Hill, talked on "Varicose Veins."

"Hemorrhage from the Umbilical Cord of Babies" was discussed by Dr. J. S. Triplett, Harrisonville.

Dr. M. P. Overholser, Harrisonville, gave a paper on "The Problem of State Care of the Mentally Sick and the Urgent Need of Efforts for the Preservation of Mental Health." These papers were thoroughly discussed.

The application for membership of Dr. A. R. Elder, Harrisonville, was approved by the board of censors and Dr. Elder was elected a member.

Members present were: Drs. M. P. Overholser, J. S. Triplett and A. R. Elder, of Harrisonville; L. V. Murray, Pleasant Hill; and T. W. Adair, Archie.

L. V. MURRAY, M.D., Secretary.

#### DENT COUNTY MEDICAL SOCIETY

The Dent County Medical Society recently elected the following officers: President, Dr. Lloyd H. Hunt, Salem; secretary-treasurer, Dr. W. E. Rudd, Salem; delegate to the State Medical Meeting, Dr. Lloyd H. Hunt, Salem.

#### BATES AND VERNON-CEDAR COUNTY MEDICAL SOCIETIES

The April 16 meeting of the Bates and Vernon-Cedar County Medical Societies was held in the Butler courthouse at 7:00 p. m. The president of the Bates County Medical Society, Dr. C. A. Lusk, Butler, presided. The following were present: Drs. J. T. Hornback, E. H. Liston and W. L. Davis, of Nevada; A. G. Altham, Sheldon; C. B. Davis, Walker; E. E. Robinson, and C. W. Luter, of Adrian; C. A. Lusk, E. N. Chastain, J. S. Newlon, and George H. Thiele, of Butler; C. J. Allen and W. H. Allen, of Rich Hill. Visitors: Dr. B. O. Hartwell, Drexel, of the Cass County Medical Society; Dr. C. C. Dennie, Kansas City, and Dr. F. J. Hall, Kansas City, were the guests of the Society and presented the scientific program through the

## JASPER COUNTY MEDICAL SOCIETY

The meeting of the Jasper County Medical Society was called to order at Joplin, April 7, by the president, Dr. L. C. Chenoweth, Joplin. There were twenty-five members and eight visitors present. There was no business to be transacted and no case reports.

Mr. Hoover, of the school of medicine extension division of the University of Kansas, presented for the consideration of the members the curriculum of an extension course in internal medicine to be given in ten lectures for ten consecutive weeks beginning the middle of June. The course would be conducted by Drs. L. D. Thompson and J. V. Lawrence, St. Louis, of Washington University School of Medicine. Mr. Hoover will call on the individual physicians for their decisions.

Dr. Frank D. Dickson, Kansas City, furnished the scientific program with the presentation of a very comprehensive outline on "Closed Reduction and Treatment of Fractures." At the request of some of the members he discussed briefly the treatment by open reduction. His talk was profusely illustrated with lantern slides and two reels of motion pictures.

Discussions were given by Drs. H. A. LaForce, Carthage; S. A. Grantham, Joplin; J. W. Barson, Joplin; H. D. McGaughey, Joplin, and W. H. Mallory, Joplin.

### Meeting of April 14

The Jasper County Medical Society was called to order at Joplin, April 14, by the president, Dr. L. C. Chenoweth, Joplin, with nine members present. The minutes of the previous meeting were read and approved.

The president discussed the mailing list for invitations to the State Medical Meeting and it was decided that letters should be sent to every doctor in Missouri eligible to attend the meeting and to secretaries of county societies adjacent to Joplin in Kansas, Oklahoma, and Arkansas.

Dr. L. B. Clinton, Carthage, reported an interesting case of an eight-year old girl who had been ill for three years complaining of weakness and paleness with abdominal enlargement. He commented on the failure of the doctors who had seen her previously to make a blood count in spite of obvious anemia. After exhaustive investigation a diagnosis of true splenic anemia was made. The spleen was removed and found to weigh 27 ounces. Post-operative convalescence was uneventful. The case was freely discussed.

Dr. A. B. Clark, Joplin, called attention to the occasional occurrence in extreme youth of conditions usually found only in adults. He reported the case of a fifteen year old girl from whom a six pound fibroid was removed.

Dr. J. L. Sims, Joplin, reported the case of a multiple deformity arthritis in a woman seventy years old who recently sustained a subtrochanteric fracture, the result of a fall.

Dr. W. H. Mallory, Joplin, reported a case of fractured hip with pain in the knee and popliteal space.

O. T. BLANKE, M.D., Secretary.

## LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society held its regular monthly meeting in Higginsville, April 28, at the Farmers Bank Building. Dr. E. L. Johnston, Concordia, president, was in the chair. Members

present were: Drs. Francis Mann, Wellington; R. C. Schooley, Odessa; Odus Liston, Oak Grove; W. E. Koppenbrink, W. C. Webb, W. A. Braecklein, D. C. Davis and J. DeVoine Guyot, of Higginsville; J. G. W. Fischer, Alma; and T. R. Butler, Lexington.

Dr. D. C. Davis, Harrisonville, read a splendidly prepared paper entitled "Frankly Speaking—Are We Underpaid?" The paper dealt with some of the timely economic questions that are at present confronting the small-town doctor. A splendid discussion ensued which was participated in by every member present.

Dr. J. DeVoine Guyot, Higginsville, reported a case with postmortem findings of an enormously large empyema of the gallbladder which presented unusual diagnostic problems.

Dr. E. L. Johnston, Concordia, reported an unusual case of postpartum hemorrhage.

The Lafayette County members are producing some splendid papers which are arousing interest in adjoining counties and we are glad to note that members of other counties are attending our meetings and carrying the gospel back home. We meet twelve times a year, have a real program at every meeting and have about the most enthusiastic group of men in Missouri.

J. DEVOINE GUYOT, M.D., Secretary.

## RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met in Moberly, April 14. Dr. D. A. Barnhart, Huntsville, presided in the absence of the president, Dr. L. O. Nickel, Moberly.

Members present were: Drs. C. K. Dutton, P. C. Davis, Florian L. Harms, Max E. Kaiser, R. D. Streator, L. E. Huber, F. L. McCormick and C. H. Dixon, of Moberly; G. M. Ragsdale, J. F. Flynt and M. C. McMurry, of Paris; D. A. Barnhart and R. G. Epperly, of Huntsville; Carl Smith, Moberly; and R. A. Woods, Clark.

Dr. Thomas S. Fleming, Moberly, presented a motion picture entitled "Surgery of the Extremities."

### Meeting of June 10

The Randolph-Monroe County Medical Society met June 9 at 8:00 p. m. in the Chamber of Commerce rooms at Moberly. Those attending were: Drs. W. C. Gayler and A. J. Raemdonck, of St. Louis, who were present through the courtesy of the Postgraduate Committee of the State Association; D. A. Barnhart and R. G. Epperly, of Huntsville; A. B. Cramb, Kirksville; W. O. Hawkinson, Roanoke; D. H. Miller and George Hawkins, Salisbury; O. H. Damron, Keytesville; W. M. Dickerson, Armstrong; R. A. Woods, Clark; M. C. McMurry and J. F. Flynt, of Paris; and L. E. Huber, C. K. Dutton, M. E. Leusley, C. C. Smith, F. L. McCormick, H. C. Griffiths, Max Kaiser, Florian L. Harms, C. H. Dixon, P. C. Davis and R. D. Streator, of Moberly.

Dr. W. C. Gayler, St. Louis, gave an address on "Induction of Labor" and Dr. A. J. Raemdonck, St. Louis, spoke on "Gastro-Intestinal Disorders." Both presentations were greatly appreciated.

THOS. S. FLEMING, M.D., Secretary.

## WOMAN'S AUXILIARY

### Officers 1931-1932

President, Mrs. U. J. Busiek, Springfield.  
President-Elect, Mrs. David S. Long, Harrisonville.



1st Vice President, Mrs. Ralph W. Holbrook, Kansas City.

2nd Vice President, Mrs. R. S. Kieffer, St. Louis.

3rd Vice President, Mrs. H. M. Grace, Chillicothe.

4th Vice President, Mrs. W. T. Martin, Albany.

Corresponding Secretary, Mrs. F. T. H'Doubler, Springfield.

Recording Secretary, Mrs. J. A. Chenoweth, Joplin.

Treasurer, Mrs. L. S. James, Blackburn.

Auditor, Mrs. J. J. Gaines, Excelsior Springs.

Directors (2 years): Mrs. George Ruddell, St. Louis; Mrs. G. B. Schulz, Cape Girardeau; Mrs. S. P. Howard, Jefferson City; Mrs. H. W. Carle, St. Joseph; Mrs. Calloway, Nevada. (1 year): Mrs. C. B. Summers, Kansas City; Mrs. J. D. Guyot, Higginsville; Mrs. D. A. Barnhart, Huntsville; Mrs. John A. Powers, Warrensburg; Mrs. P. L. Patrick, Marcelline.

### CLAY COUNTY AUXILIARY

The Woman's Auxiliary to the Clay County Medical Society was entertained at a musical tea in the recreation hall of the United States Veterans' Hospital, Excelsior Springs, May 18. The hostesses were: Mrs. Louis H. Webb, Mrs. Ferdinand Shoemaker, Mrs. Benjamin Durham, Mrs. O. S. Wilfrey, Mrs. J. D. Brooks, Mrs. Joseph Dauksys, Mrs. A. N. J. Dolan, Mrs. Garret V. Johnson and Mrs. R. P. Crawford. A delightful musical program was given.

Mrs. J. J. Gaines, Excelsior Springs, presented an interesting report of the annual meeting of the state auxiliary at Joplin. Delicious refreshments completed the afternoon.

The guests included: Mrs. W. H. Goodson, Mrs. Burton Maltby, Mrs. J. H. Rothwell, Mrs. F. H. Matthews, Mrs. W. L. Wysong, of Liberty; Mrs. O. C. O'Kell, Mrs. S. D. Henry, Mrs. S. R. McCracken, Mrs. J. E. Baird, Mrs. Y. D. Craven, Mrs. W. J. James, Mrs. H. J. Clark, Mrs. J. F. Grace, Mrs. R. W. Prather, Mrs. C. H. Suddarth, Mrs. J. J. Gaines and Mrs. J. E. Musgrave, of Excelsior Springs.

### LAFAYETTE COUNTY AUXILIARY

The Woman's Auxiliary to the Lafayette County Medical Society met at the Confederate Home in Higginsville, April 28, with Mrs. J. DeVoine Guyot as hostess.

On May 27, the Auxiliary met in Lexington at the home of Mrs. C. T. Ryland.

The Auxiliary ranked second in placing Hygeia according to the report read at the annual meeting of the Woman's Auxiliary at Joplin.

## BOOK REVIEWS

**HISTORIC ARTIFICIAL LIMBS.** By Vittorio Putti, M.D., Professor of Orthopedic Surgery, University of Bologna. With 11 illustrations. New York: Paul B. Hoeber, Inc. 1930. Price \$1.50.

In this brief discussion on artificial limbs Vittorio Putti describes the mechanism of some of the artificial limbs of earliest historic record. It is an interesting brochure and contains numerous illustrations of the artificial limbs of the fifteenth and later centuries.

**PHYSICS OF RADIOLOGY.** For the Student of Roentgenology and Radium Therapy. By J. L. Weatherwax, M.A., Physicist, Philadelphia General Hos-

pital, Associate in Radiotherapeutic Physics, University of Pennsylvania Graduate School of Medicine. With a foreword by Henry K. Pancoast, M.D., Professor of Roentgenology, University of Pennsylvania. With 126 illustrations. New York: Paul B. Hoeber, Inc. 1931. Price \$5.00.

The foreword by Dr. Pancoast will recall the difficulties of working with roentgen rays before instruments of precision were known. I am inclined to believe that these difficulties are not much thought of today, being unknown to the younger practitioners and the few older roentgenologists remaining are willing to forget them.

Radium, the roentgen ray and its practical application and the biological effect of such application, are explained as we understand them today. The dosage technic with the simplification of dosage measurements will remain with us for further study. The volume is valuable to the student.

The publisher has done good work. A few errors have crept into the text, such as the implantation of radon for carcinoma of the tongue or tonsil through the rectum. E. H. K.

**MODERN METHODS OF TREATMENT.** By Logan Clendening, M.D., Professor of Clinical Medicine, Lecturer on Therapeutics, Medical Department of the University of Kansas; Attending Physician, Kansas City General Hospital; Physician to St. Luke's Hospital, Kansas City, Missouri. With chapters on special subjects by H. C. Andersson, M.D.; J. B. Cowherd, M.D.; H. P. Kuhn, M.D.; Carl O. Rickter, M.G.; F. C. Neff, M.D.; E. H. Skinner, M.D.; and E. R. DeWeese, M.D. Fourth edition. St. Louis: The C. V. Mosby Company. 1931. Price \$10.00.

This new edition is especially valuable because the author has incorporated the most recent advances in the treatment of disease. Most commendable are the arrangement of material and the discussion of the reasons for the application of the treatment of each disease. The bibliography is extensive and very useful, the many quotations from the writings of outstanding authorities being worked into each chapter in a concise and practical manner. The scientific and practical data are well equalized and show that the day of empiricism in treatment is past. If internist and general practitioner would develop the data contained in this book a new era in therapy would dawn upon us. W. G. B.

**HUMAN BIOLOGY AND RACIAL WELFARE.** By 28 American Authors. Edited by Edmund V. Cowdry, Ph.D., Professor of Cytology, Washington University, St. Louis. Introduction by Edwin R. Embree, President of the Julius Rosenwald Fund, Chicago. Illustrated. New York: Paul B. Hoeber, Inc. 1930. Price \$6.00.

This is an ambitious work in which twenty-eight scientists attempt to present what we know about science, particularly as it affects us human beings. These authors include the best known physiologists, biologists, biochemists, physicists, entomologists, astronomers, Rockefeller Institute for Medical Research workers and what not. Some of the articles are good, some very good and some "not so good." The book is divided into five parts which includes life in space and time, origin of species, man as a physiological unit, effects of environment and the future.

In the introduction we read: "The papers presented in this volume report the results of investi-

gations in a great group of sciences vitally affecting man. They are intended not only to give a general background and perspective to students of special sciences, but also to give to the average intelligent layman some knowledge of the present state of learning in these several branches of knowledge and to give him some idea of the bearing of the various specialties upon man and the possibilities of his further development."

Even if you do not read it all this book is well worth the purchase price. R. L. T.

**THE MEDICAL MUSEUM.** Modern Developments, Organization and Technical Methods based on a New System of Visual Teaching. By S. H. Daukes, O.B.E., M.D., D.P.H., D.T.M. & H. Director of The Wellcome Museum of Medical Science affiliated to The Bureau of Scientific Research. The Wellcome Foundation, Ltd., Endsleigh Court, 33, Gordon Street, London, W. C. 1.

The methods described have been in use in part or entire in a number of the American medical schools for several years, therefore the material will be received as a stimulus to those already using such procedures rather than as something new. Too little financial support and encouragement is accorded the men who have the ability and inclination to build up such a museum of specimens, illustrations, photographs, charts, radiographs, and so forth, as described by the author. Such a collection is the ideal, and in this field lie the source and storeroom of medical information, facilities for research and teaching of the future. The medical museum should be an encyclopedia of normal and diseased tissues.

Visual education by the means described is rapidly coming to the forefront and replacing to a marked degree the old didactic lecture method. To the specialist and to the graduate student, as well as to the undergraduate neophyte, this method will be the all important one as a time-saving procedure as well as a means of demonstrating conditions to be met at the bedside, in the operating room, and at the autopsy table.

Students of the future will have to depend upon these storehouses for their information on a number of lesions which now under hygienic and preventive measures promise to become rare if not extinct; for example, the severe syphilitic lesions of yesteryear, diphtheria, trichinosis, smallpox, typhoid fever, trench fever, and others. The author also properly emphasizes the part such a museum should play in the teaching of diseases common in some locations but not available at the center of teaching, as, for instance tropical diseases.

A special chapter titled "Some References and Abstracts on Museum Technique" is of value. The various divisions and sections with types and methods of exhibit in a museum are well illustrated by diagrams and by photographs from the Wellcome Museum of Medical Science. M. P. N.

**ROENTGEN INTERPRETATION.** A Manual for Students and Practitioners. By George W. Holmes, M.D., Roentgenologist to the Massachusetts General Hospital and Assistant Professor of Roentgenology, Harvard Medical School, and Howard E. Ruggles, M.D., Roentgenologist to the University of California Hospital and Clinical Professor of Roentgenology, University of California Medical School. Fourth edition, thoroughly revised. Illustrated with 237 engravings. Philadelphia: Lea & Febiger. 1931. Price \$5.00.

The fourth edition of "Roentgen Interpretation"

is a condensed work of about three hundred pages, covering the diagnosis and technic of roentgenography of practically the entire human body. The book, to cover so many subjects, must be concise and the text condensed. The volume is written for students and practitioners but it will be a great help to many practicing roentgenology exclusively.

The authors are well known men of large experience and their judgment is good. The reviewer read every chapter and felt that only the high points were touched. Then he remembered the preface saying, "Such a survey can do little more than cover the essentials." The essentials are well covered. E. H. K.

**OBSTETRICS.** A Textbook for the Use of Students and Practitioners. By J. Whitridge Williams, Professor of Obstetrics, Johns Hopkins University; Obstetrician-in-Chief to the Johns Hopkins Hospital, Baltimore. Sixth enlarged and revised edition. With seventeen plates and seven hundred and thirty illustrations in the text. New York: D. Appleton and Company. 1930.

In the sixth edition, Williams has revised his book thoroughly and many sections have been completely rewritten; for example, the chapters on anesthesia, technic of low cesarian section, the toxemias of pregnancy, and blood transfusions.

As in all previous editions, Williams puts stress on conservatism, which makes the book such an outstanding one for students and practitioners. Many splendid illustrations have been added. H. F. V.

**THE PRINCIPLES AND PRACTICE OF MEDICINE.** Designed for the Use of Practitioners and Students of Medicine. Originally Written by the Late Sir William Osler, Bt., M.D., F.R.S., Formerly Fellow of the Royal College of Physicians, London; Regius Professor of Medicine, Oxford University, etc. Eleventh Edition Revised by Thomas McCrae, M.D., Fellow of the Royal College of Physicians, London; Professor of Medicine, Jefferson Medical College, Philadelphia. New York and London: D. Appleton and Company. 1930.

The original text has remained much the same, and can be taken for the purposes for which it was written, namely, a textbook for students; the later editions for some unknown reason seem to lack the romantic inspiration of the older text. While minute detail does not come within the province of a textbook, it would seem to the reviewer that more material could have been used, especially in the more recent developments relative to influenza, encephalitis, endocrine dysfunctions, blood dyscrasia and the clinical hazards of industrial occupations.

On the other hand, this one volume contains all that is needed to stimulate either the student or practitioner to further study, be he so inclined. And that is its mission. F. I. R.

**PRACTICAL DIETETICS.** For Adults and Children in Health and Disease. By Sanford Blum, A.B., M.S., M.D., Head of Department of Pediatrics, and Director of the Research Laboratory, San Francisco Polyclinic and Post Graduate School. Fourth revised and enlarged edition. Philadelphia: F. A. Davis Company. 1931. Price \$4.00.

The index is admirably arranged and the busy practitioner may refer at once to the disease or con-



dition on which he wishes information in regard to diet. The section on dietary for infants and children is very clear and practical. One may search through the volume and rarely find any omission. Achlorhydria and hypertension appear to be omitted. Many gastro-enterologists will not feed broth to an ulcer case. The arteriosclerotics would probably do better on a diet containing a preponderance of the alkaline ash elements. H. W. S.

RECENT ADVANCES IN HAEMATOLOGY. By A. Piney, M.D., Ch.B. (Birm.); M.R.C.P. (Lond.), Haematologist, Cancer Hospital, London; etc. Third edition, with 4 coloured plates and 18 text-figures. Philadelphia: P. Blakiston's Son & Co. 1931. Price \$3.50.

This is the third edition of a book dealing with a gradually changing subject. The discussions are complete and interesting but there seems to be a dearth of references. It is nice easy-chair reading for leisure time, but little in it for practical application by the practicing physician. A. S. W.

THE PATHOLOGY OF INTERNAL DISEASES. By William Boyd, M.D., M.R.C.P., Ed., Dipl. Psych., F.R.S.C., Professor of Pathology in the University of Manitoba; Pathologist to the Winnipeg General Hospital, Winnipeg, Canada. Illustrated with 298 engravings. Philadelphia: Lea & Febiger. 1931. Price \$10.00.

Modesty probably prevented the author from giving his book the title "Pathology of Internal Diseases Made Interesting," for, in addition to the scientific information which fills its pages is the literary achievement of presenting a didactic subject in a free, easily readable style which holds attention from cover to cover, a quality all too rare in medical literature.

This is a companion volume to Prof. Boyd's "Surgical Pathology," and treats, as the author states, "not only subjects which are omitted from a surgical pathology, but many which are discussed in such a work," meaning the border-line diseases between medicine and surgery. He has omitted from this work the infectious fevers, tropical diseases and those conditions which have no known morbid anatomical basis. No small part of the book's value lies in the correlation of pathology with symptomatology with which each subject is closed. The illustrations are numerous and exceptionally good and in themselves constitute regard for a study of the text.

It is difficult to single out particular portions of so meritorious a work, but several are especially good. The chapter on "Diseases of the Heart" is presented in a way that gives the reader a clear understanding of the subject. There is a careful discussion of diseases of the lungs and also of the pleura, the treatise on pulmonary tuberculosis being especially good. The book includes a comparatively concise though comprehensive article on jaundice and diseases of which it is a sign, and on liver function in which, after reviewing the several accepted tests for hepatic function, he urges the use of the least complex and least difficult, in each instance giving his reason for the recommendation. Diabetes mellitus is presented in a practical way and the illustrations aid the reader very materially in understanding the changes in the pancreas. An outstanding section is that on Bright's disease. It is as exhaustive as any student of clinical medicine could wish. The author prefers the classification of glomerulo-nephritis, first, second

and third stages, and arteriosclerotic kidney rather than parenchymatous and interstitial nephritis. He objects to the term "nephritis" as indicating an inflammatory process because, as he points out, only the first stage is a glomerular inflammation, the second stage being a tubular degeneration and the third stage an arteriosclerotic thickening leading to the arteriosclerotic kidney. The chapter on adrenal glands includes a study of the histological changes from their beginning in the embryo, through their evolution in utero and their development after birth to maturity, reviewing also in a brief manner the physiology of the adrenals. To Addison's disease he pays considerable attention, emphasizing the statement that "we know as much of its cause as Addison did, and no more." No chapter in the book is more worthy of attention than that on goiter. Observations of students of thyroid pathology, those accepted as definitely proved as well as the controversial points, are presented frankly and scholarly, discussed impartially and in sufficient detail. The author calls attention to the fact that the usual classification of endemic or colloid goiter, adenomatous goiter and exophthalmic goiter must be considered as a clinical classification rather than morphological. He recommends their division into (1) diffuse goiter with involution, (2) nodular goiter in which either hyperplasia or involution may be predominant, and (3) diffuse goiter with hyperplasia. It is a most interesting chapter.

Each chapter has appended a carefully prepared bibliography and the index of 47 pages at the end of the book is quite satisfactory. The book is worth having and it would profit any internist to peruse it. A. M.

HEMORRHOIDS: THE INJECTION TREATMENT AND PRURITUS ANI. By Lawrence Goldbacher, M.D., Philadelphia. Illustrated with 31 half-tone and line engravings, some in colors. Second revised edition. Philadelphia: F. A. Davis Company. 1931. Price \$3.50.

Goldbacher presents the treatment of hemorrhoids and pruritus ani by the use of phenolized oil. It is brief, lucid and thoroughly covers the subject,—very commendable features in this age of voluminous literature.

The short chapters on the anatomy concerned and the classification of hemorrhoids are necessary to an understanding of the selection and successful treatment by this extremely useful method. The chapter on etiology (from Piersol), leaves one as uncertain as ever concerning the cause of hemorrhoids. A discussion by the author of an inherited tendency to varicosities and the role of infections might be more enlightening.

Phenolized oil is recommended only when there is no demonstrable cause for pruritus ani. Whether such cases are due to so-called mucous channels or deep infection, the method has considerable merit at times.

In reading this book one should remember that it is not a treatise on proctology but simply the presentation of one method of treating a selected group of cases. F. B. C.

#### GOAT'S MILK

The composition of goat's milk and cow's milk varies little, says *Hygeia*. The small globules of fat in goat's milk render it somewhat more digestible, though cow's milk assumes a similar quality when it is homogenized.

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### HYPOTHYROIDISM IN YOUNG WOMEN\*

EDGAR D. BASKETT, M.D.  
COLUMBIA, MO.

Since the description of myxedema by Sir William Gull in 1873 and the demonstration of its connection with disease of the thyroid gland by the brothers Reverdin in 1882, there has been an increasing interest in the subject. However, the whole tendency of writers upon this subject has been to ignore the milder manifestations of the condition and to give their attention to myxedema. Within the last five or six years since basal metabolic determinations have been more commonly made there has been an increasing attention paid to the milder manifestations of hypothyroidism chiefly by Lawrence,<sup>1</sup> Lawrence and Rowe,<sup>2</sup> Warfield,<sup>3, 4</sup> Harrell,<sup>5</sup> and Higgins.<sup>6</sup> In this condition the classical signs of hypothyroidism or myxedema are for the most part absent and as a rule the physical examination of the patient shows very little of moment. A carefully taken history, however, generally elicits much valuable information when this condition is kept in mind.

For the past three or four years the writer has become gradually impressed with the belief that many people who consult the physician with the complaint of "tiredness," "lack of pep," etc., or with the request for a tonic, are in many instances mildly hypothyroid individuals. Of course other diseases, especially tuberculosis, hyposuprarenalism, malnutrition, and pernicious anemia, must be ruled out.

With this in mind and due to the fact that not a few cases of hypothyroidism had been found among the students of Stephens College in past years, the writer was requested by Dr. Nifong, the college physician, to undertake this study.

#### PROCEDURE

At the beginning of the present school year a careful physical examination of each student

was made in addition to the one made by the young woman's family physician. In the course of the examination she was asked the following questions: (1) Do you tire easily? (2) Are you sensitive to cold? (3) Is your skin dry? (4) Are your hair or nails brittle? (5) Do you take cold easily?

Basal metabolic rate determinations were made upon the group who gave positive answers to one or more of the questions, most of which were complaints of tiredness. In the determination a regular procedure was followed. The student entered the college infirmary the evening before; the purpose of the test was explained to her and a "dummy" test was run to show its innocuousness thus allaying any fears that might have developed. Early the next morning she was allowed to go to the bathroom and return to bed. One and a half to two hours later the basal metabolic rate determination was made. All determinations were made with a Sanborn "Grafic." The normal standard was the Sanborn, which is not quite so high as the Aub-DuBois, nor quite so low as the Harris-Benedict standards. The usual precautions were taken to avoid technical errors, such as leaks, comfort of the student, condition of the soda lime, etc. All determinations were made by the writer.

Before beginning any treatment Thurstone's scholastic aptitude test was made upon the group being tested as well as upon other students apparently normal.

Dessicated thyroid gland was then prescribed for those students showing a basal metabolic rate of minus eleven per cent or lower. After some five or six weeks they were again tested and the dosage corrected according to the reading. If the reading was within plus or minus ten per cent, the dosage was fixed at that level. In numerous instances three or four tests were made to get the correct basal metabolic rate. After the correct dosage was found the student was requested to continue on this dosage permanently. During the observation period and toward the end she was questioned in regard to her subjective symp-

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



toms, such as tiredness, sensitivity to cold, and the condition of hair, nails and skin. Finally, the whole group which had been given the basal metabolic test, as well as the others from the student body who had been given the scholastic aptitude test, were retested by the school psychologist in order to check on any improvement.

Numerous difficulties were encountered in making this study. Because we were dealing with rather irresponsible girls, in many instances, much valuable data could not be obtained due to lack of cooperation. Another difficulty, which has been met with repeatedly by other investigators, was the tendency of the subject to hold herself tense thus raising the basal metabolic rate. Another possible explanation of this point is an increased activity of the suprarenals. This was obviated considerably by running the "dummy" test the evening before in order to allay any subconscious misgivings they might have had. However, even after putting a subject upon thyroid, the next test registered lower than the first in some instances. This is best explained by the assumption that the first test was much too high so that even though the true rate was raised after taking thyroid, yet it was not raised enough to bring it up to the level of the first one.

RESULTS OF THE SURVEY

In all, determinations were made upon 113 students whose ages ranged from 16 to 20 years, but most of them between the ages of 17 and 19 years. They were all students in Stephens College, a junior college for women. Essentially, the student body comes from families of the same social stratum and while in college is living under uniform conditions, such as food, work, play and other activities.

Of the 113 young women tested the basal metabolic rate determinations are grouped as shown in table 1.

Table 1. Basal Metabolic Rates on 113 Students

Number of Cases	Per Cent of Total	Basal Metabolic Rate in Per Cent
59	52.2	—11 to —20
19	16.8	—21 to —30
2	1.7	—31 to —40
33*	29.2	+10 to —10

\* Selected as the normal control group.

Table 2. Basal Metabolic Rates on the 28 Students Obtained by Sampling of the Student Body

Number of Cases	Per Cent of Total	Basal Metabolic Rate in Per Cent
11	39.3	—11 to —20
2	7.1	—21 to —30
1	3.5	—31 to —40
14*	50.0	+10 to —10

\* Selected as the normal control group.

In order to determine the prevalence of the condition, sampling of the student body was

done by testing every twentieth student in alphabetical order. In all, twenty-eight students were tested whose basal metabolic rate determinations are grouped as shown in table 2.

After a student had been taking thyroid for some time she was questioned as to her subjective impressions of the treatment. Out of 37 students, 32, or 86.4 per cent, gave definite statements of feeling much better, especially the chronically tired ones. Many were quite enthusiastic over the help they had received in this respect. Others who had not stood cold weather well noticed that it did not bother them as formerly. One student who suffered from easy fatigability and constipation was markedly helped in both respects, although a roentgenogram showed a huge megacolon which did not change after thyroid feeding even though the constipation was much relieved.

Because of the lack of power of concentration, memory and will, which are seen as early symptoms,<sup>7</sup> it was thought to be of interest to obtain data of an objective nature upon this point both before and after treatment in those taking thyroid and those who were not. The only previous work which could be found upon this point is by May,<sup>8</sup> who treated 182 children suffering from various glandular deficiencies. Her studies of the intelligence quotient of these children showed little or no improvement after having been on treatment from four months to two years.

In the Stephens College project, several groups were studied, such as those with a low basal metabolic rate who were taking thyroid and those who were not. Another group which showed a normal rate was compared with the preceding ones. These results are shown in table 3. The results of the scholastic aptitude test showed no gain in aptitude after taking thyroid when compared with a group of like initial ability. This test, however, shows a slightly lower initial ability in the group having a low basal metabolic rate when compared with the group having a normal rate. A comparison was also made between the various groups on the basis of scholastic grades. The result of this comparison is shown in table 4. Here the students having a low initial rate who had been on thyroid made a better showing than the others. Comparison between the scholastic aptitude and the scholastic attainments of the different groups is shown in table 5. (A word of explanation is called for here as all the grades are lower at the end of the experimental period than at the beginning of the year, due to a tightening up of academic standards throughout the school. The better showing of the students taking thyroid would

Table 3. Comparisons Between Gain Made on the Scholastic Aptitude Test by the Experimental Group With Gain Made by Control Groups

Group Studied	Number in Each Group Is 20		Aptitude Test First	Test Last	Per Cent	
	Metabolic Rate First	Rate Last			Gain	Gain
1. The experimental group. Students given and who responded to thyroid treatment.....	—20.6	+1.6	129.65	161.2	31.55	24
2. Students with low basals but failed to cooperate or for some reason were not treated.....	—20.4	None	136.95	182.7	45.75	33
3. Students practically normal according to the basal metabolism test .....	— 4.83	None	141.81	176.1	34.29	24
4. Students who made an initial aptitude test score similar to that made by each student in the experimental group .....	None	None	121.80	167.90	46.10	38
5. Students who made an initial aptitude test score similar to those in Group 2.....	None	None	137.39	181.18	43.79	32
6. Students who made an initial aptitude test score similar to those in Group 3.....	None	None	142.23	176.84	34.61	24
7. Sampling of the student body, obtained by the selection of every 20th student from the roll.....	—11.85	None	141.59	173.89	32.30	23
8. Students who made an initial score equal to that made by Group 7 .....	None	None	135.36	174.12	38.76	29

Table 4. Comparisons Between Gain Made in School Grades by the Experimental Group With Gain Made by Control Groups

Group Studied	Number in Each Group is 20		School Grades First	Last	Per Cent	
	Metabolic Rate First	Rate Last			Gain	Gain
1. Experimental group. Students given and who responded to thyroid treatment.....	—20.6	+1.6	2.24	2.21	— .03	— 1.3
2. Students with low basals but failed to cooperate or for some reason were not treated.....	—20.4	None	2.29	2.23	— .06	— 2.6
3. Students practically normal according to basal metabolism test .....	— 4.83	None	2.39	2.25	— .14	— 5.8
4. Students who made an initial aptitude test score similar to those in Group 1.....	None	None	2.15	1.92	— .23	—10.5
5. Students who made an initial aptitude test score similar to those in Group 2.....	None	None	2.33	2.27	— .06	— 2.6
6. Students who made an initial aptitude test score similar to those in Group 3.....	None	None	2.34	2.19	— .15	— 6.4
7. Sampling of the student body, obtained by the selection of every 20th student from the roll.....	—11.85	None	2.27	2.13	— .14	— 6.1
8. Students who made an initial score similar to that made by each in Group 7.....	None	None	2.29	2.10	— .19	— 8.3

Table 5. Comparison Between the Scholastic Aptitude and Scholastic Attainments of the Experimental With the Control Groups

Group Studied	Number in Each Group is 20	Average Metabolic Rate	Scholastic Aptitude	Scholastic Attainment
1. Experimental group. All students who had basals below 12 per cent .....		—20.5	134.28	2.26
2. Group who had basals above —10 per cent.....		— 4.83	141.89	2.39
3. Sampling of the student body, obtained by selection of every 20th student from roll .....		—11.85	141.59	2.25

seem to indicate an increased keenness and ability to memorize over their previous status.)

DISCUSSION

In the light of fairly recent findings our old conception of hypothyroidism, which was practically synonymous with myxedema, must be abandoned.

It is only recently that clinicians have noticed that many obscure complaints are due to a low thyroid function. Beck<sup>9</sup> recently reported several curious complaints in the genito-urinary field. We must abandon our conception, which the textbooks give us, that the hypothyroid patient is a sluggish, sallow, puffy-faced person with slow speech and sluggish movements. While this picture is true for the more severe types of the disease it is far from the correct one in the milder manifestations.

This brings up the question, how to determine whether or not a person is suffering from hypothyroidism. There is probably no one test which will answer this question. The differential blood count may be of some help. The symptomatology is of great help.

The basal metabolic rate determination in the writer's opinion is of marked value when properly done and interpreted. If diseases of the blood, such as tuberculosis, Addison's disease, and pituitary disease, be ruled out it would seem that we have a very reliable guide in thyroid work. It must, however, be interpreted in the light of physical findings and a carefully taken history. Even when there are no definite complaints and the physical examination is negative, it may still be the one thing which clears up many vague complaints, or a complaint referred to an organ thought to have no relation to this condition; as, for example, constipation or a failing heart.

Koehler<sup>10</sup> is of the opinion that hyposuprarenalism may give low readings. The type of person which he describes as suffering from this condition is generally twenty-five to forty years of age, onset is sudden and variable, improved by rest and vacation, with an unstable vasomotor system, as is shown by flushing and paling. This type of person has not been seen in this survey. Warfield<sup>4</sup> doubts that it plays a very important role. Certainly Koehler<sup>10</sup> does



not present a very convincing differentiation between the two conditions.

Another question that might be asked is, what is the normal physiological level? Is it exactly 100 per cent? It would seem that there is some variability either way for there are seen occasionally patients who begin to show symptoms of thyroid overdosage when their basal metabolisms are still under 100 per cent. It might very well be urged that minus eleven per cent is too near normal to be considered hypothyroid, yet it is frequently seen by workers in this field that patients with a slightly low rate may be greatly benefited by thyroid therapy to the extent of clearing up a harsh, dry skin, increasing energy, and relieving constipation.

The group of supposedly normal young women here studied is of interest in that it shows a quite large group who present some evidence of hypothyroidism by their symptoms and the presence of an abnormally low metabolic rate. The geographical distribution is also of interest as the college draws its students mostly from that portion of the United States commonly spoken of as the Middle-West, which lies in the midportion of the Mississippi River basin. The causal agent, or the lack of some substance, probably iodine, shows a widespread distribution. These findings are especially of interest as this section of the country is not thought of as being in the goiter belt, as is the Great Lakes basin from which Warfield<sup>4</sup> recently reported a high incidence of mild hypothyroidism.

#### CONCLUSIONS

1. Hypothyroidism is a condition much more prevalent, especially in mild degree, in the Mississippi River basin than is generally supposed.

2. In its mild form, there are very few physical findings to indicate its presence, but careful questioning with it in mind may often clear up many puzzling complaints, e. g., indefinite rheumatoid pains, tiredness, and constipation.

3. It may cause some lowering of mental ability especially if allowed to go unrecognized.

4. Thyroid feeding with a carefully assayed preparation, adequately controlled by basal metabolic rate determinations, in hypothyroid individuals is of great value.

I wish to thank Dr. F. G. Nifong, college physician, for his courtesy and support, and Dr. C. N. Rexroad, psychologist, and Mr. W. P. Shofstall, research secretary of Stephens College, for their cooperation. Thanks are due also to the Laura Spellman Rockefeller Foundation for its financial support.

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#### TREATMENT OF THYROID DISORDERS WITH IODINE\*

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Thyroid disorders are frequently encountered that are vague, but back of them is usually thyroid disease with morphological changes in the gland substance which later will cause definite clinical manifestations.

The most frequent diseases of general interest are the endemic diseases, commonly called endemic goiter, cretinism, and deaf-mutism. These have existed for hundreds of years in the goiter zones of continental Europe, of which France and Switzerland have been and still are the most afflicted. In these countries thyroid endemicity has created severe social and economic loss. In the seventeenth century, Felix Platter associated deaf-mutism with endemic goiter and cretinism but, while this belief has been generally accepted, some are skeptical as to the thyroid origin of deaf-mutism.

America and Canada having no such goiter zones, our statistics are not satisfactory when compared to those of France and Switzerland. We do have endemic goiter but it is not found in great goiter areas, and fortunately cretinism is seldom found here while deaf-mutism is rarely heard of in connection with endemic goiter. We speak of the adolescent and colloid types of goiter as seen in this country as simple or endemic goiter when they are non-toxic in type. Eventually, however, a large per cent of our endemic goiters become toxic and as such show clinical symptoms of thyrotoxicosis.

In continental Europe the toxic goiter has been the exception rather than the rule and, because of this, they cling to the term endemic

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goiter. The histological pictures found in non-toxic as well as in toxic goiters are much the same wherever they are found, at home or abroad. While such goiters vary with different individuals in size, shape and consistency, the morphological changes, as found, belong to a certain stage in the development of the pathological cycle in which they are found.

Toxic goiter seems to have become more prevalent since the war in all countries. Primary and secondary toxic goiters have always been plentiful in American people, but we recognize them now more than previously. The European countries before the war had very little toxic goiter, but they too are having a marked increase of toxicity in their goiter patients. This increased toxicity is believed to be due to the changed conditions of living. All peoples lived under more stress and strain during the war and since than they did before the war. Money is scarcer, times are harder, business in general is worse, family life is more exacting and, all in all, our daily life is one of constant hustle and hurry for both old and young. Because of such environment our emotions are more activated and our nervous systems are under tremendous strain.

In France, fifty years ago, endemic goiter and cretinism were so prevalent that from 90 to 100 per cent of the population were afflicted. Congenital goiter was a common occurrence. Most children developed goiter early in life, and it was usually well defined between the sixth and fourteenth years of life. Entire cantons or villages whose population became afflicted with endemic goiter remained so. The thyroid glands of the children once having passed the enlargement stage of puberty became permanently goitrous, and no known method of treatment by medicine was available that would make them normal. After several generations of endemic goiter a lowered mentality was found in the matured members of such families. Lauener states that in Berne a few years ago, 2 per cent of the school children were mentally deficient.

In 1792 Fodere published his paper on "Goiter and Cretinism," and brought the entire population of France and Switzerland face to face with their goiter situation and the alarming increase of cretinism. He pointed out that intermarriage of goitrous people paved the way for the birth of cretins, and that endemic goiter was the first step in that pathological sequence of thyroid disease which eventually had cretinism as an outcome.

Cretins may not have a goiter but they always have an aplastic thyroid gland incapable of physiological function. The goiter invariably present may be hypertrophic or atrophic. If no thyroid is present idiocy results. Cre-

tinism must be recognized early in the life of the child, preferably before the sixth month, in order to gain results by iodine and thyroid therapy. The longer it takes to diagnose the disease and begin treatment the less satisfactory will be the result of treatment, which at best is unstable.

As you know, the cretin has, on a dwarfed body, a large head with open fontanels, a round, puffy, expressionless face and a saddle-shaped nose. (Crotti.) He has a thick tongue which protrudes from a mouth that dribbles saliva. He is pot-bellied, bandy-legged, weak muscled, and stupid in appearance. The skin is pale, sallow, and dry. His arms, legs, fingers and toes are short, and the backs of his hands and eyelids are edematous. His mentality is poor. The genital apparatus of most cretins in both sexes is underdeveloped and sexual activity is deferred until after the thirtieth year of life; after that age sterility has usually occurred.

Baillarger reported that in 1874 there were in France 122,700 cretins, and in addition to this a half million persons suffering from endemic goiters. This proportion runs true for Switzerland.

No definite etiology has ever been proved for goiter, but forty or more factors according to St. Lager in 1865 were considered contributory and still are considered so. We come in contact with many of these factors when we consider the environment and living conditions of the people in goiter colonies.

Usually such people lived in mountainous regions, in low, filthy huts, admitting little light and no sunshine, with damp, earthen floors. They seldom if ever bathed and their dirty bodies were poorly clad. They ate improper and insufficient food. Such families had no idea of sanitation or personal hygiene and lived with the household animals in comparative poverty.

Compare this environment with the environment of any modern city having a filtration plant, modern sanitation and properly applied individual personal hygiene. McCarrison shows the importance of these facts when he cites instances where endemic goiter existed for seventy years in a village that had an infected water supply. The entire supply was changed and a new modern filter system was installed, along with other modern sanitary measures. Within a comparatively few years endemic goiter had practically disappeared from the children, although the new water supply contained less iodine than the old supply from the infected wells and river water. Non-goitrous people coming to this country did not contract goiter.

The streams and wells were infected when



following each rain the drainage from the sewage and garbage of these goitrous areas was washed into them. McCarrison showed that the water of infected streams was productive of goiter in nongoitrous persons under experimental conditions when he fed such water in concentrated form to soldiers who in a few weeks, developed goiter. He found in such goiter zones that when water which contained 1200 parts of iodine to 100 billion parts of water was contaminated or impure, the prevention of goiter in nongoitrous persons was impossible in spite of the high iodine content of the water.

Endemic goiter is regarded by many as a nutritional disturbance, and they believe that these people probably suffered from avitaminosis as we know it today, because of their inability to get green vegetables, fruit, and butter fats. In addition to this infection resulted from unhealthy modes of living, and their lack of understanding the value of such a simple thing as boiling the drinking water.

Because these people were poor and methods of travel were unavailable to them they usually did not get far from their homes. This further added to their bad environment by forcing intermarriage and consanguinity which resulted in an increase of endemic goiter, cretinism and idiocy.

The infection theory as an important etiological factor in causing endemic goiter cannot be disputed. Both Marine and McCarrison have shown that to be true. But the interpretation of the findings was different. The separation of the iodine deficiency theory from the infection theory is difficult because the two are apt to overlap, on close analysis, as you will see from Marine's experiment with trout.

The experiments of Marine and Lenhart, and of McCarrison, are of interest. The former produced goiter in healthy trout put into a series of tanks arranged one above the other so that the water flowed from the raceway, from above downward, through the tanks. The fish were kept in tanks that soon became filthy because of crowding and feeding with fatty foods, such as liver, butter and oils. It was found that while only 3 per cent of the fish in the upper tank became goitrous, 84 per cent of the fish in the lower tank contracted goiter. The goitrous fish that were taken out of the tanks and put back into the water soon recovered from the hyperplasia, but the goiter did not disappear. When iodine, arsenic and mercury bichloride were separately put into these tanks, one at a time, and new fish added, no new goiters developed in those fish in spite of the presence of the original

substances in the tanks that supposedly caused goiter. But the addition of antiseptics in the contaminated tanks did not cause the goiters in the original fish to disappear. Hence, Marine and Lenhart jumped to the conclusion that the deficiency of iodine was causative of these goiters.

McCarrison has worked out the "infection" theory practically in the Gilgit villages in Himalayan India, where such villages are arranged on the sides of the mountain, one above the other. The inhabitants of the highest of these villages had no animal life above them, but ate the same food and lived the same life as the other villagers lower down on the mountain side. The topmost village had a goiter incidence of 11.8 per cent, while the lowest village, which got all the drainage from the others after the heavy rains, had a goiter incidence of 45.6 per cent. He has said that endemic goiter exists in India in the mountains, on the plains, and along the seacoast, and in the presence of plenty of fresh air and sunshine, whether in hot or cold weather.

He has found goiter where the iodine content of the soil, the water, and the food was high. He has noted its absence in sections where the iodine content of the water, food and soil was low. (Low, 300 parts iodine to 100 billion parts water. High, 1200 parts iodine to 100 billion parts water.)

Kimball found the percentage of iodine to be low in streams supplying the people in the areas where goiter was prevalent in the United States.

The iodine theory in the treatment of goiter is not new, but it has been more intelligently applied as a prophylactic than was the case when Chatin used iodine vapors and iodized salt in the treatment of goiter during the middle of the nineteenth century; and Prevost in 1849 suggested the cause of goiter to be due to an iodine deficiency. (Berard and Dunet.)

Coindet, in 1820, demonstrated that iodine as a tincture was useful in the treatment of endemic goiter in doses of 5 to 20 drops three times a day. He later used potassium salt of hydriodic acid instead of the tincture as an improvement on the latter. He condemned large doses during pregnancy because it caused uterine hemorrhages and nervous conditions were apt to develop from its use.

In 1853, iodine was used in France in food as a powder, or on neckties and collars to be worn at night by children and adolescents, the so-called iodine collar.

In 1859 iodism was described by Rilliet following the wide use of iodine and attention was invited by him to the fact that harm was

thus being done. The practice of giving iodine then fell into disrepute until Bauman in 1895 found that iodine was a normal constituent of the thyroid gland.

In 1907, Marine taught that goiter was due to lessened iodine content of bodily tissues and that the thyroid cannot function normally without iodine.

In 1916-1917, Marine and Kimball began their prophylactic work for goiter among school children of Akron, Ohio. To each child they gave 30 grains of sodium iodide each spring and fall in a syrup over a period of two weeks. After four years the results were outstanding and to them convincing. Of those pupils taking iodine who had had normal glands (908 cases) 99.8 per cent were still unchanged; of those who had slightly enlarged thyroid (1139 cases) 41 per cent were unchanged and 57.8 per cent were decreased; of those with moderately enlarged thyroid glands (143 cases) 20 per cent were unchanged and 79.7 per cent were decreased (2190 cases). Simultaneously, those controls not having taken prophylaxis during the same period (2305 pupils) goiter was unimpeded and no progress in curbing the disease had been observed.

The conclusion drawn from this was that iodine was decidedly useful as a preventive and in some cases it was found to reduce the size of the gland.

Meantime, Klinger was working out the same idea in Switzerland and in 1921 he made a goiter survey in Zurich and showed goiter reduction from 90 to 28.3 per cent, after iodine prophylaxis. Sixty per cent of these children in the same area after 3 years had nearly normal thyroid glands.

Of 76,606 school children between the ages of 7 and 16 years examined by Kocher (1883-1884) in Berne canton the goiter incidence was found to vary between 29 and 78 per cent. In 1908 Kocher, Jr., made a similar survey and found the goiter situation to have changed very little during those years.

In different parts of Zurich the children between the ages of 6 and 14 years were found by Klinger to have goiter in 72 to 100 per cent.

In Geneva, 68 to 79 per cent of the population showed normal thyroid glands, according to Rilliet, but there remained 21 to 32 per cent who were afflicted with goiter.

Before the war, 5 to 7 per cent of the French and Swiss recruits were goitrous and unfit for service. Most of them had developed their goiters between the ages of 14 and 17 years.

Kraft examined 1492 children of school age between 1922 and 1926 and found among those entering schools 13 per cent were free from goiter; 51.6 per cent had palpable thyroid

glands and 34.8 per cent had goiters. They used iodostarin for 4 years and at the end of that time, under similar conditions, 85.3 per cent were free from goiter, 14.4 per cent had a palpable thyroid gland and .3 per cent had goiter.

Von Fellenberg very promptly devised a method of analyzing blood, urine, water and tissues, and estimating their iodine content. He was able to estimate the amount of inorganic iodine as well as the organic iodine in the blood serum. Later he analyzed food stuffs for their iodine content.

Kolmer states that after ingestion of sodium iodide that it is absorbed from the mucous membranes of the mouth and gastro-intestinal tract into the lymph and venous channels and later may be found in almost any tissue in the body, and only traces are present in the serum protein as sodium protein compound; after intravenous injection, from 6 to 9.9 per cent iodide was present in the serum proteins. After potassium iodide had been injected 16.8 per cent of iodide was found in serum proteins. However, while both these inorganic iodides are of low toxicity the sodium iodide is seven times less irritating than the potassium iodide. Free iodine is decomposed and liberated in the stomach and gets into the circulation to combine with the plasma proteins.

Iodides are eliminated through the kidneys, and iodine is present in milk, tears, sweat, nasal discharge, sebum, transudates, exudates and feces. Elimination is rapid, about 60 to 150 milligrams normally being sent through the kidneys every 24 hours in nongoitrous persons. Of a given amount of iodine above the normal output, about 60 to 80 per cent of iodine will be in the urine within 24 hours after ingestion.

The daily absorption of iodine from the air, food and water, according to Von Fellenberg, is thirty-one three-millionths of a gram in nongoitrous areas, as against thirteen three-millionths of a gram in goiter areas.

Lunde made an analysis of the urine of those who ate much fish and those who ate fish sparingly. Men of Norway, who ate fish plentifully, passed 75 milligrams of iodine through the kidneys in 24 hours, but those who ate fish sparingly passed only 43 milligrams of iodine each 24 hours. He found that a kilo of fish eaten by an individual should increase his iodine content about 2 to 3 milligrams. As iodine is present and held tight in fish (salt) fats, whether canned or fresh, either kind of fish is valuable.

It was believed necessary, in order to keep the blood iodine level fairly uniform, to find some form of iodine that when ingested would



not be eliminated so rapidly. Larger doses of inorganic iodides had to be given than was necessary, to keep up the iodine of the tissues. They sought a form that would decompose slowly from the intestinal tract and not leave the body quickly. Hence, smaller amounts, given oftener, were desired.

Gudernatsch showed that there was little difference between the inorganic iodides and the organic iodides for practical purposes. Posternak said that iodized fats do not yield their iodine rapidly but pass through the stomach unchanged, decompose slowly in the intestine and leave the body slowly.

Various substances in tablet form were used in preventive work by different workers, such as thyroidin, which contained 0.000279 grains of iodine; thyreoglobulin, containing 0.0015 grains of iodine; lipiodine which contained 0.123 grains of iodine, and later iodostarin containing 47 per cent iodine was made up into tablets which vary from 1 to 10 milligrams per tablet. Small doses were found to be absolutely satisfactory for prophylaxis, while large doses were likely to cause harm, especially to those who were susceptible to its use. The other substance used was iodized salt, containing 0.005 potassium iodide to each kilogram of table salt (2.2 lbs.).

It seems that the iodine deficiency conception, while theoretically not perfect, has been generally accepted. Its clinical adaptation has given excellent results under definite conditions, and continues to do so.

We may say there are several indications for the use of iodine in the treatment of goiter, namely:

1. As a preventive of goiter in children.
2. As a prophylactic during pregnancy.
3. In the treatment of thyroid enlargement and early goiter during adolescence.
4. In the preoperative preparation of toxic goiter patients and postoperatively to prevent thyrotoxicosis.

In order to obtain the best results from the iodine as a preventive measure it is necessary to give to the individual as much iodine as will serve its purpose yet not enough to cause iodism in any form.

We know that younger people are not usually susceptible to iodine, but older people seem to be much more so. Nevertheless, older people can be protected from goiter as well as young ones by prophylactic doses if there is no idiosyncrasy to the iodine.

Iodized salt has been made compulsory in certain towns in Switzerland, where the goitrous areas are not improving and people would not voluntarily use it. Under similar circumstances iodine was put into the water supply

used for drinking for the people who were not improving from their goiters.

A reduction in the number of new cases was quickly noticed, where iodized salt or iodized water supply was practically forced on the entire population.

Bayard and Kaspar believe that iodized salt is useful but dangerous. A preventive in children, it is apt to cause iodine Basedow in those mature people who have goiter but do not know it, or in those who have not known they were being fed iodized salt and are susceptible to it. Hunziker has shown that some goiters will disappear on one tenth of a milligram of potassium iodide given daily. This may be true, not so much because of the iodine as in spite of it. We know that many goiters disappear spontaneously. One cannot pick out an individual goiter and be certain that iodine will take it away.

A convention was called of the 3008 doctors in Switzerland several years ago. Of this number, 1675 reported to Stiner to give some statistics on goiters made toxic by iodine. Three thousand six hundred and twenty-five cases of Basedow's disease were reported by 904 doctors, and in 1116 cases they showed that without question iodine had caused toxic conditions to develop in an otherwise nontoxic nodular goiter.

The final opinion has been similar to the report of Eggenberger. He believes that while iodized salt or iodine put into the municipality water supply does cause bad effects on certain individuals, these effects are not lasting if the iodine is stopped promptly and therefore not really serious.

The canton of Appenzell seems to show the best results, according to Eggenberger, after 5 years, by:

1. Having caused 75 per cent less operations since 1923 than previously.
2. Causing a total disappearance of congenital goiter.
3. Causing a diminution of stillbirths and deaths due to goiter after birth.
4. Causing an increase in birth weight.
5. By coincidentally diminishing the size of goiter in adults who were not susceptible to iodism.

Iodine when taken as a prophylactic must be taken by all nongoitrous persons visiting or living in a goitrous region so long as they remain there, to be properly protected.

Iodine should be given to pregnant women because experience has proved it to be of value. The English have shown that cottonseed cake without iodine, fed to cattle to fatten them during early pregnancy, will cause abortions or the birth of unhealthy calves. The experi-

ments of Stiner on cattle have shown that more milk with higher fat content is found in cows after they have had iodine than before. This should make the milk of mothers protective while on iodine, and in addition the milk of such cattle should be beneficial as a prophylactic to children.

In the preadolescent goiter iodine is useful sometimes, but there are many thyroid enlargements where iodine, whether in large or small doses, over a long or short time, will not make them improve, and a few of them will be made worse. Many of the soft goiters seen at this time will disappear on the proper usage of thyroxin, which contains 66 per cent of iodine.

Many of these adolescent goiters are associated with the development of the sex organs at the onset of the menses and will not disappear until puberty has been well established, in spite of any treatment.

In speaking of the preoperative use of iodine in the treatment of toxic goiter, we must pause for a moment and give Plummer credit for the intelligent manner in which he has worked out this feature. Iodine given before the operation reduces the metabolic rate and the pulse rate. The patient loses the signs of toxicity and is no longer restless, nervous, emotional with a high pulse rate and a pounding, overactive heart, which misses beats and causes discomfort and dyspnea on the slightest exertion. Because of these things the patient sleeps and gains weight. A patient properly prepared for operation means much more safety for the patient and less trouble for the surgeon.

Iodine prevents the high temperature, excito-motor-activity and tachycardia, with early delirium that were encountered so frequently as a thyrotoxicosis previous to the giving of iodine as a preventive. Postoperative iodine is useful, then, really in a prophylactic sense.

Of course, the treatment of these conditions is a long subject, but it is only necessary to say that iodine used under these circumstances shows wonderful results.

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## SYMPTOMS ACCOMPANYING OVARIAN HYPOFUNCTION

A STUDY OF ONE HUNDRED THIRTY-SIX CASES\*

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That the ovary is a true organ of internal secretion is proved by substantial evidence

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gained from observation after removal, from transplantation of ovarian tissue, and by the effect of certain ovarian substances injected into the tissues.

Castration before sexual maturity causes a failure of development of the secondary sex characteristics and in adult life produces regressive changes in the uterus, vagina and external genitals manifested by well-marked atrophy of the parts.

Transplantation of sex glands as done by Voronoff, and vasoligation and vasectomy as done by Steinach and others, have elicited much comment, some favorable and some not so favorable. However, it is known that in some instances these operations are followed by varying degrees of change, spoken of as rejuvenation. Any beneficial results from these operations are fleeting.

Brown-Sequard has told us that in experimenting upon himself by injecting an extract derived from the testes of dogs definite effects were produced. He claimed to have "regained much of his former strength, fatigued less easily, and was able to do work greatly in excess of what he had been capable of before. His mental faculties were increased and intellectual efforts became easier." Most writers do not place much credence in these statements, and probably their attitude is justified. However, it is such men as Brown-Sequard who by their enthusiasm initiate investigations which later develop into something useful to mankind and enrich our store of knowledge.

Stockard and Papinicaou<sup>1</sup> described an exact method for following the estrual changes in the living guinea pig by the vaginal smear. This method has been applied to the correlation of the estrual phenomena in the genital organs of the rat<sup>2</sup> and the mouse.<sup>3</sup> Allen and Doisy<sup>4</sup> employing ovarian follicle fluid from hogs' ovaries produced pubertas praecox in immature albino rats. The vagina of the immature rat is completely closed, its external one third being a solid cord of cells. They found that the injection of the ovarian follicular hormone into immature rats, both normal and spayed, induced a sexually mature condition in the genital tract similar to that of an animal experiencing its first estrus. This was effected in from two to three days by four to six injections of

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an active extract at an age as early as 26 days, or 20 to 50 days before the usual time of the attainment of puberty. This work was later confirmed by Frank, Kingery and Gustafson.<sup>5</sup>

Allen and Doisy<sup>6</sup> also devised a simple method of testing the potency of the follicular hormone by injecting a potent extract into spayed rats in which there was atrophy of the vaginal epithelium with the production of the estrus cycle on the third day.

Frank<sup>7</sup> has demonstrated that an identical potent hormone can be obtained from the follicles, the corpus luteum, the placenta and the blood of pregnant women.

Zondek and Aschheim in 1927 found that the urine of pregnant women contains large quantities of the follicular hormone. Doisy<sup>8</sup> using such urine was able to isolate the follicular hormone in crystalline form. This substance, like other isolated hormones, is of great potency.

#### ETIOLOGY OF OVARIAN HYPOFUNCTION

Ovarian hypofunction may be due to pathological conditions such as cystic degeneration or inflammatory processes in or adjacent to the ovaries—salpingitis, appendicitis, etc.—which may cause degeneration in the glands. It may be secondary to constitutional disease processes, as some anemias, tuberculosis, malignancies other than pelvic, etc. Vitamin deficiency in the diet may cause it. It may be primary as in eunuchoidism with late development of the secondary sexual characteristics in which the ovaries may never attain full development and function. It may be secondary to anterior lobe pituitary deficiency as in infantilism, bilobar-pituitary insufficiency, preadult (Froehlich's syndrome) or postadult. It may occur after partial castration where one ovary has been removed or only a small part of one ovary remains. It will be complete where both ovaries are removed unless there be supernumerary ovarian tissue. It always occurs at the climacteric.

#### SYMPTOMS ACCOMPANYING OVARIAN HYPOFUNCTION

The disturbances which accompany ovarian hypofunction may be divided into objective signs and subjective symptoms.

*Objective Signs.*—The objective signs are, first, various types of menstrual disorder occurring separately or with varying degrees of com-

bination, such as irregularity, scantiness of flow with decreased duration and finally amenorrhea. Menorrhagia and metrorrhagia also occur at times but these two conditions are more apt to occur in women who are approaching the natural menopause than in those of younger age. In the castrate, of course, the amenorrhea usually follows the operation.

The second objective sign is the gonadal type of obesity characterized by a deposition of fat over the trochanters, mons veneris and adipose enlargement of the breasts. This type of obesity usually occurs in the eunuchoid woman and the castrates after they reach the age of approximately 30 years. It has been my experience that the pituitary (shoulder and pelvic girdle) type of adiposity occurs more often in young women who have had bilobar-pituitary insufficiency in youth with secondary hypogonadism, and in women who have had apparently normal gonadal function until after some pregnancy when they rather rapidly gain weight, in some instances at an alarming rate. As women approach the age of forty I believe they tend toward the thyroid type of obesity combined with or superposed upon the pituitary type. Other signs of ovarian hypofunction are atrophy of the genitals and loss of genital and axillary hair.

*Subjective Symptoms.*—The subjective symptoms accompanying ovarian hypofunction render the patient more uncomfortable than do the objective signs. They may be classified as (1) nervous, (2) circulatory, and (3) general. A proper evaluation of their significance is necessary as these symptoms are frequently the chief basis of a diagnosis. That the reader may more easily recognize these symptoms, the author will attempt to describe them as they have been presented to him by a large number of patients.

*Nervous Symptoms.*—(1) Subjective nervousness is an intense feeling of nervous tension. These patients tell you that they feel like screaming, or as though they might lose their mind. Many state that they feel jumpy, or that they feel trembly inside their body. In most instances they do not have tremor but occasionally this nervousness may become so extreme as to cause some tremulousness.

(2) Excitability is a nervous state in which the persons respond to ordinary stimuli in an exaggerated manner. In this instance I refer especially to the psychic response. Unfavorable news, slight mishaps, arguments, all manner of little occurrences that would not disturb a normal individual cause quite a nervous and mental flurry.

(3) These people are very irritable and easily aggravated or excited to anger by deed or

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word. They are hard to please. Noises of playing children, the radio, almost anything stirs them to action. In fact, they need no special stimulus. They are simply hard to get along with. In many instances they acknowledge this condition but state that they cannot help being so.

(4) Headaches of various types and location occur but are rarely migrainous. The etiology of migraine<sup>9</sup> is undetermined and when it occurs with endocrine disorders is probably only initiated or aggravated by the glandular dysfunction. The headache may be described by the patient as a dull to severe ache, not neuralgic in type. It may occur irregularly or be continuous. I have had patients with headaches lasting continuously for thirty to forty days which were relieved by proper endocrine treatment. Their location may be temporal, frontal, vertex, or occipital, with any combination of these. At times they may be pancranial.

The one type of headache which has almost specific diagnostic importance in hypoovarianism is the occipitocervical headache which radiates to the nape of the neck, at times over the upper scapular regions or down the spine. It is described as a very severe dull combination of ache and pain which may be more or less continuous for days. I found this present in 50 per cent of the castrates and in 37.5 per cent of my menopause patients.

(5) Among nervous symptoms may be classed psychic depression, commonly called "the blues." When in this state these patients have no special interest in ordinary activities. They cannot "cheer up." It is an effort to smile or laugh, they do not want company or care to enter into pleasurable entertainment. Frequently, this depression is accompanied by crying for no good reason, in fact, no reason at all. They state that they cannot prevent this. (This depression must not be confused with the apathy of hypothyroidism. Hypothyroid patients are dull and listless. They do not care for anything. They are not worried.) This condition if untreated or unimproved may progress to anxiety psychosis in which the patients feel ill at ease. They have a fear of impending danger which they cannot explain. They feel that something dreadful will happen to themselves, their loved ones or others. At times they imagine that someone is watching them or that they hear strange noises. I have had patients especially in the menopause develop persecutory delusions and some whose past life had been rather Bohemian develop an extreme religious outlook.

(6) Decreased memory and ability to concentrate the mind are observed. They forget where they put things. They cannot remember, especially recent events. They cerebrate slowly. The mind seems hazy or fogged. If they read a article they cannot tell what they have read and frequently must reread it three or four times before it registers. This is found in hypoovarianism and hypothyroidism especially.

(7) Fornication, a sensation as if ants or insects were crawling over the skin especially on the back and body, is frequently complained of. There may also be prickling or tingling of the skin.

(8) A large majority of these patients complain of sleeping poorly. They may be restless, sleeping only for short intervals during the night. Some fall asleep quickly upon retiring only to awake within one half hour and remain awake for varying lengths of time. Others do not sleep upon retiring until after midnight. Some complain that they sleep well until 2 or 3 a. m. and then remain awake until morning. This is known as insomnia.

Patients who do not sleep at night find themselves exhausted the next day and must sleep during the daytime. This desire to sleep during the daylight hours must not be confused with somnolence. True somnolence is a condition characterized by inability to remain awake either night or day. These people are sleepy most of the time. They sleep soundly all night and fall asleep when they sit down during the day. I have known patients to fall asleep while driving automobiles and go into the ditch, or strike objects or other cars and have been accused of being drunk, especially if injured and rendered unconscious. Somnolence is especially a symptom of hypothyroidism and insufficient secretion of the posterior lobe of the pituitary gland.

*Circulatory Symptoms.*—(1) Hot flushes are characterized by a sudden redness of the face and neck, upper chest and at times most of the body. This is akin to blushing and is due to dilatation of the superficial capillaries of the skin. It is a very uncomfortable sensation, generally of short duration but may last one half hour or even longer if the statements of some of my patients are correct. Frequently this is described as a smothering sensation. This may be accompanied by vertigo and scotomata or tingling or prickling sensations over the head, neck and body. Occasionally, hot flushes alternate with chilly sensations over the same area or follow them. Hot flushes may accompany disturbances of the cardiovascular system, especially arteriosclerosis with hyper-

9. Barborka, C. J.: Migraine, J. A. M. A. 95:24 (December 13) 1930.



tension, but these conditions can be eliminated by proper diagnosis.

(2) Tachycardia, palpitation and dyspnea more than usual upon moderate effort without evident cardiac disease, nephritis or edema are complained of. (This group of symptoms accompanies fatigability, which probably should be included under general symptoms but since they are so closely related I will discuss them together.)

These people complain of easy fatigability. Sweeping, ascending a flight of stairs, walking a block to the store, almost any moderate effort causes more fatigue than normally. With this they have mild to moderate tachycardia, palpitation and dyspnea. No organic lesion can be found to account for them. Probably they are due to a generalized decrease in muscular and vascular tonus. Patients frequently tell you that they are more tired upon arising in the morning than when they went to bed. This group of symptoms may follow infectious diseases, toxemias, etc., but these can be eliminated by proper history and examination. Again, infectious diseases and toxemias are frequently the basis of glandular dysfunction.

(3) Vertigo with change of position and no evident cardiovascular lesion is another very frequent symptom. It is generally more annoying than serious.

(4) Tinnitus occurs frequently without evident causative lesions.

(5) Scotomata as dark spots or silvery specks floating before the eyes are of common occurrence. Vertigo, tinnitus and scotomata often occur concurrently. Of these, vertigo is the most frequent. When no causative lesion can be found to account for them and when they occur in conjunction with other endocrine syndromes they must be evaluated at their proper significance.

(6) Cold hands, feet and extremities are commonly found in hypofunction of the ovaries, thyroid, pituitary and adrenals.

(7) The pulse in hypofunction of the ovaries, thyroid, adrenals and pituitary is generally soft and may be of low tension. In hyperthyroidism and hyperadrenalism it is fast. In hypothyroidism it is slow. The pulse is so variable in endocrine disorders, depending upon age of the patient and other intercurrent factors, that further discussion of it will not be taken up here.

(8) Blood pressure, generally speaking, is low in glandular hypofunction and increased in hyperfunction.

*General Symptoms.*—(1) Lassitude and fatigability have been discussed.

(2) Constipation is frequently found in

hypofunction of the thyroid and pituitary glands in which we have a relative vagotonia. Many of these patients complain of a gastric syndrome characterized by distension and eructation after meals with no organic lesions. This is probably secondary to the constipation and usually disappears with proper elimination. While some cases of constipation may have a glandular basis, I think that the vast majority are probably due to improper habits, diet, gastro-intestinal pathology, etc.

(3) Vague pains are complained of and their location may be as legion as the distribution of the sensory nerves. One of the most common of these is a boring ache which may be located at the inferior angle of either scapula, interscapular, or at the base of the spine of the scapulae. Again, it may be anywhere along the spine, especially in the lumbo-sacral region. The legs may ache. Precordial aching is of frequent occurrence.

There may be aching or pain over the gall-bladder area, the appendix, the lower abdomen or pelvis, without temperature, increased pulse, leukocytosis or other findings which should accompany pathology in these regions. These patients complain incessantly. Many of them have the ovaries, tubes, uterus, appendix, or other organs removed with no relief. I have had patients on whom as many as five and six abdominal operations had been performed with more symptoms in the end than before the surgery began. When the patient has vague abdominal pains following an operation, the favorite diagnosis is postoperative adhesions, a diagnosis that is often the basis for more surgery.

#### STUDY OF ONE HUNDRED THIRTY-SIX CASES

That these symptoms do accompany ovarian hypofunction is conclusively shown by refer-

Table 1. *Frequency of Nervous Symptoms*

	40 Castrates Per Cent	96 Menopause Per Cent
Nervousness, subjective	100	92.7
Excitability	80	72.9
Irritability	67.5	61.4
Headache	25.0	50.0
Occipitocervical pain	50.0	37.5
Decreased memory and concentration	52.5	54.1
Depression, crying	62.5	60.4
Psychosis	17.5	35.4
Formication	22.5	23.9
Sleep disturbed	62.5	59.3

Table 2. *Frequency of Circulatory Symptoms*

	40 Castrates Per Cent	96 Menopause Per Cent
Hot flushes	92.5	91.6
Tachycardia, palpitation, dyspnea	47.5	72.9
Vertigo	70.0	71.8
Scotomata	40.0	50.0
Cold hands and feet	37.5	23.9
Numbness, tingling	25.0	29.1
Pulse average per minute	76	78.3
Blood pressure average per minute	133/79	138/88.6
Pulse pressure average per minute	54	50

Table 3. Frequency of General Symptoms and Signs

	40 Castrates	96 Menopause
	Per Cent	Per Cent
Lassitude, fatigability	75.0	78.1
Constipation	72.5	72.9
Vague pains	Not recorded	
Obesity (32 cases) <sup>1</sup>	37.5 (86 cases)	45.8
Menstrual disorder	100	97.7
Basal metabolism (6 cases)	+6.4% (17 cases)	+8.2%, (3) —7%

1. Obese before menopause, 18; after menopause, 26.

ence to tables 1, 2 and 3, which are tabulated from histories of forty castrates whom I have observed in the endocrine clinic of the St. Louis City Hospital and in private practice.

That this same train of symptoms is found with striking parallelism in the menopause is also shown by tables 1, 2 and 3 in which I have tabulated the symptoms complained of in ninety-six cases of natural menopause.

In table 4 I have combined the symptoms accompanying ovarian hypofunction in the order of their frequency as found in one hundred thirty-six cases, consisting of forty castrates and ninety-six of natural menopause.

Table 4. Hypoovarian Syndrome in 136 Cases (40 Castrates, 96 Menopause)

Order of Frequency of Symptoms:	Per Cent
1. Menstrual disturbances	98.9
2. Nervousness subjective	96.3
3. Hot flushes	92.1
4. Excitability	76.5
5. Fatigability, lassitude	76.5
6. Constipation	72.7
7. Vertigo	70.9
8. Irritability	64.4
9. Depression, crying	61.8
10. Sleep disturbed	61.9
11. Tachycardia, palpitation, dyspnea	60.2
12. Decreased memory, concentration	53.3
13. Scotomata	45.0
14. Occipitocervical pain	43.8
15. Headache	37.5
16. Cold hands and feet	30.7
17. Numbness, tingling	27.1
18. Psychosis	26.7
19. Formication	23.2
20. Vague pains	Not recorded

Table 5 presents miscellaneous data pertaining to forty castrates. The present average age relates to the time of my first observation of the individual patients. The average age of castration was 28.1 years. Most of them had been complaining of the symptoms to different physicians for varying periods of time. Under "Onset of Symptoms," table 5, it will be noted that in seven cases the symptoms were

Table 5. Miscellaneous Data.—40 Castrates

Present average age	35 yrs.
Average age of castration	28.1 yrs.
Onset of symptoms:	
Immediate (33)	82.5%
Delayed (7)	17.5%
Period of delay:	
.5 year 1; 1 year 2; 1.5 year 1;	
2.5 years 1; 5 years 1; 6 years 1.	
Average duration of delay	2.5 yrs.
Flow after castration, scant and irregular (11)	27.5%
Amenorrhea at present (37)	92.5%

delayed. The average duration of delay was 2.5 years. In three cases the delay was 2.5

years, 5 years and 6 years, respectively. It is possible that these women did not have complete bilateral ovariectomy or that they might have had some supernumerary ovarian tissue. A fragment of ovarian tissue is not sufficient to carry on normal function and probably scar tissue formation and contraction following the operation may cause it to atrophy. In eleven women who had attempts at menstruation following operation the flow was scant and irregular. Thirty-seven of the 40 castrates had complete amenorrhea before consulting me.

Table 6. Miscellaneous Data.—96 Menopause

Present average age	44.1 years
Average age of onset of symptoms	40.8 years
Nature of menstrual disturbance:	
1. Irregularity (62 cases)	64.6 per cent
2. Scantiness (50 cases)	52.0 per cent
3. Menorrhagia (19 cases)	19.8 per cent
4. Dysmenorrhea (17 cases)	17.7 per cent
5. Metrorrhagia (6 cases)	6.3 per cent
6. Amenorrhea (40 cases)	41.5 per cent
Average length of amenorrhea (40 cases)	26.2 months

Table 6 shows the average age of onset of symptoms as 40.8 years and the average age at which I was consulted as 44.1 years, showing that these women had been complaining of the symptoms for an average of 3.3 years. This chart also gives the nature of the menstrual disturbance in the order of frequency. However, several of these anomalies of menstruation were found in the same patients. In forty the average length of the amenorrhea was 26.2 months. If the patient had menstruated within six months she was classified as irregular instead of amenorrheal.

In table 3 I have listed "vague pains" as belonging to this group of symptoms, but since my data were rather incomplete I did not give percentages relating to them. Of 32 of the castrates of whom I have a record as to obesity, 37.5 per cent were overweight. The records of 86 of the cases of natural menopause show that 45.8 per cent were obese; 18 of them were obese before the onset of symptoms and 26 grew obese after the onset.

Of 73 women in natural menopause, 6 never had children and 67 had borne 298 children, an average of 4.44 each. Ten of the castrates had borne 23 children, an average of 2.3 each. Ten women on whom I had a record of abortions admitted 27 such mishaps.

The average pulse rate in 40 castrates was 76 per minute, in 96 of natural menopause 78.3 per minute.

The average blood pressure in the castrates was systolic 133, diastolic 79, average pulse pressure 54 mm. Hg. In the natural menopause patients the average systolic pressure was 138, diastolic 88.6, pulse pressure 50 mm. It will be noted that the natural menopause



cases being older show an average higher reading of 5 mm. Hg. for systolic blood pressure, 9.6 mm. Hg. for the diastolic.

#### DISCUSSION

The term menopause, literally meaning cessation of menstrual flow, is commonly used to designate that critical period in a woman's life more correctly spoken of as the climacteric. Menstrual pause may occur at any time during the menacme from various causes. The menopause is more than a pause or cessation of menstrual flow. This is only one of the phenomena which occur at this time. It is the one sign which is objective and therefore attracts most attention. From my clinical observations I am more and more inclined to believe that the ovarian hormone of the mature woman probably has no important constitutional function beyond its specific action in the processes relating to reproduction.

The pathogenetic mechanism of menopausal symptomatology is not limited to insufficiency of the ovaries but is the result of a complex endocrine crisis which varies in different individuals. In this crisis the predominating feature is gonadal insufficiency, but other glandular disturbances occur subsequently and form an essential part of the complex. Because of the major importance of the gonads in the endocrine system during active sexual life, insufficiency or cessation of function frequently causes imbalance in other interrelated glands, such as the thyroid, adrenals (medulla and in some instances the cortex) and the pituitary, especially the anterior lobe.

With this disturbance of function in the ovaries and other interrelated glands we have a secondary disturbance of the delicate equilibrium between the two divisions of the autonomic nervous system with the production of the subjective symptoms described. In other words, most of these symptoms are the result of autonomic nervous system instability secondary to glandular imbalance.

The onset of symptoms and their degree of severity may depend upon the rate of cessation of ovarian function. If the cessation is a gradual process, the interrelated glands, such as the thyroid, adrenals and pituitary, may respond to the needs of the body or readjust their function accordingly; if it be more sudden as in castration the disturbance of equilibrium of the organs of internal secretion and the autonomic nervous system will be more severe.

Maranon<sup>10</sup> thinks that many of these symptoms are due to what he terms the "hyper-

thyroid reaction." In other words, he believes that in many of these women there is a mild hyperthyroidism accompanying or following the hypofunction of the ovaries, which may or may not return to normal depending on certain inherent influences peculiar to each individual.

I cannot agree with Maranon that there is a hyperthyroid reaction, except in a few instances. Many women if not most of them gain weight during or after the menopause, and this is probably due to a secondary hypothyroidism. Some of the symptoms accompanying ovarian hypofunction are common to hypothyroidism. Plummer<sup>11</sup> defines secondary hypothyroidism as "a temporary lag in thyroid activity due to insufficient stimulation of the gland because of decrease in the vital metabolic processes of the tissues of the body in such conditions as some anemias, endocrine disturbances especially ovarian," etc.

Among the symptoms due to this thyroid lag may be enumerated those referable to the nervous system, which are due to decreased excitability or increase in the threshold of stimulation. Iodine accelerates the chemical activity or chemical interchange of all body cells thereby increasing the conductivity of the nerves, opening the pathways of the nervous system to stimuli. The internal secretion of the thyroid, thyroxin, contains approximately 65 per cent of iodine. In hypothyroidism this is diminished with consequent slowing of the vital processes of the body. There is less oxidation taking place in the tissues therefore metabolism is decreased; with decrease in metabolism there is a deposition of fat which is characteristic in its distribution. There may be subdermal mucoid infiltration which gives the appearance of edema but is characterized by not pitting upon pressure. This myxedematous infiltration is not limited to the skin and subcutaneous tissues but invades all the tissues of the body causing a decrease in the mental processes, slow cerebration, as evidenced by inability to think quickly and accurately, decreased memory, especially for recent events, inability to concentrate the mind, and mental depression which may progress to psychosis. There is decrease in the tonus of both striated and nonstriated muscles. In the voluntary muscular system this is evidenced by lassitude and fatigability. In the involuntary muscles we have a two-fold causation for the symptomatology, viz., (1) decreased muscular tonus, and (2) plus insufficient stimulation of all organs and parts innervated by the sympathetic nervous system, and

10. Maranon, Gregoria: *The Climacteric*, Translation, K. S. Stephens, St. Louis, C. V. Mosby Co., 1929.

11. Oxford Medicine, New York, Oxford University Press, 3:863, part 2.

we find a relative vagotonia. This accounts for the slow cardiac action, the low blood pressure in some cases, and cold extremities and may account for the benefit which some claim is had from thyroid medication in the menopause.

Maranon<sup>10</sup> speaks of thyroid instability at the menopause. He states "such symptoms of hyperthyroidism as tachycardia, palpitation and a certain nervousness are mixed with the usual ones of hypothyroidism, for some time, giving rise to an equivocal picture, which corresponds to the descriptions of thyroid instability. In this mixed syndrome there appear the symptoms of thyroid insufficiency along with those of thyroid hyperfunction."

I agree with Maranon when he speaks of thyroid instability, and with this I would include adrenal and autonomic nervous system instability.

There are three periods in a woman's life when she is apt to have trouble with her thyroid gland: (1) at puberty, (2) during any pregnancy, (3) at the menopause. If a woman is potentially hyperthyroid, i. e., if she has a goiter that has given evidence of causing trouble before, or if she has a colloid goiter with hidden adenomata within, or a frankly adenomatous goiter, she is in great danger at any of these periods of developing hyperthyroidism. I have had women who developed frank hyperthyroidism at these critical periods, but they probably had abnormal thyroids which only needed some unstabilizing influence to initiate their hyperactivity.

It has been my experience that the vast majority of these women have an approximately normal basal metabolism. Reference to table 3 shows that the metabolism of six castrates averaged plus 6.4 per cent. In 20 cases of natural menopause of whom I had basal tests, 17 women averaged plus 8.2 per cent and 3 averaged minus 7 per cent.

#### CONCLUSIONS

This group of symptoms is primarily initiated by ovarian hypofunction. The ovarian hypofunction may result from the various causes enumerated. Secondary to the ovarian hypofunction there is disturbance of function of the thyroid and adrenals, with consequent imbalance of the delicate equilibrium normally existing between the two divisions of the autonomic nervous system.

This group of symptoms might be designated the "menopausal syndrome." This term is not wholly acceptable, for these symptoms accompany ovarian hypofunction in other conditions than the menopause. Again, the term "hypo-ovarian syndrome," would be objectionable because of the obvious part which the thyroid

and suprarenals have in the causation. However, since they are initiated by hypoovarian function this seems to be a fairly descriptive term.

It is easy enough to diagnose ovarian disturbance when it is associated with menstrual disorder or when it occurs at about forty years of age or in castrates, but when the symptoms occur before time for the menopause and without much menstrual disorder, we may fail to recognize ovarian hypofunction as a possible cause. Finding no organic lesion or evidence of disease in these patients they may be diagnosed as neurasthenics and are buffeted about from one physician to another without relief.

When a woman complains of this group of symptoms, the physician should remember that they are associated with hypoovarian function and that proper treatment will probably give very gratifying results.

1032 Missouri Theater Building.

#### DISCUSSION

DR. WILLARD BARTLETT, JR., St. Louis: I should like to point out that the use of iodine in goiter is largely empirical; we use it without knowing much of its intermediary metabolism. Some isolated facts about it are known. In 1922 Deusch and Frowein described a lowering of the viscosity of the blood in 73 per cent of normal individuals after iodine administration without any constant change in the serum protein. In 1928 Nichols and Harrop reported a decreased surface tension of the blood in thyrotoxic patients; the surface tension was increased by the use of iodine and increased even to above normal by thyroidectomy. They found that the total fatty acids of the plasma, which would be expected to have a great effect on surface tension, decreased in thyrotoxicosis. The saturated fatty acids, in particular, rose after iodine administration and after thyroidectomy along with the surface tension. In 1929 Holst and Lunde reported observations on the iodine level in the blood of patients with exophthalmic goiter. Both inorganic and organic iodine were increased; during iodine treatment, however, though the inorganic iodine was greatly increased the organic fraction diminished to a normal level as the metabolism fell. The organic iodine presumably represents that in combination with the thyroid secretion, hence these authors suggested that iodine administration had the effect of damming back the iodine-containing thyroid secretion in the gland.

Not enough is known of the basic disorders underlying the hyperthyroid state to let us correlate the facts just mentioned and the many others to be found in the literature. Although the role iodine plays is unknown, yet we can state quite definitely that the clinical results of its long-continued use are becoming alarmingly apparent. We rarely see a toxic patient nowadays who has not either had iodine in one form or another prescribed over a period of months or has simply bought it for herself at the drug store. Surgeons are reaping the harvest of this abuse of iodine in that practically all such patients come to them iodine-fast and long past the point when its initial effect has worn off and cannot be repeated. As a result, we cannot now or-



dinarily put the patient into the highly desirable complete remission necessary to safe thyroid surgery and are often forced to operate on patients whose pulses vary from 100 to 110 after the most careful preparation, instead of from 70 to 80 as was possible when iodine was first introduced to the lay and medical public. We see more stubborn cases that maintain a moderate degree of toxicity and we are forced to do more operations in divided stages. We are not alone in our experience and one hears an increasing protest against the use of iodine as "treatment" for ambulatory thyrotoxic patients. Men whose experience qualifies them in having an opinion would be delighted if no thyrotoxic patient received iodine before actual preoperative treatment in the hospital was started. It would greatly reduce both the morbidity and the mortality of the disease.

What of iodine following operation? Else, of the University of Oregon, has shown that after subtotal thyroidectomy regeneration of the thyroid always occurs from the remaining tissue and that regeneration may go on to the point of hypertrophy and hyperplasia. Regeneration can be controlled by the administration of iodine in the immediately post-operative period. It has been our practice to prescribe 1 drop of Lugol's solution in water daily for at least one year after operation, instructing the patients to increase this dosage temporarily during acute infections of any sort. In this way we feel that we can further lower the percentage of recurrence of toxic goiters. During the preoperative treatment we do not give Lugol's solution because it interferes so seriously with the appetite and digestion of many patients who need all the nourishment they can get. (Anyone who doubts this should try taking 15 drops of Lugol's solution three times a day.) We therefore give sodium iodide 30 grains (the iodine equivalent of 400 drops of Lugol's solution) intravenously on the day of entrance and repeat the dose in a week or 10 days, if it seems desirable to do so.

The facts brought out by the contributors to this symposium are of fundamental importance to every man practicing general medicine, pediatrics and obstetrics in the State of Missouri where goiter is so prevalent. An increasing number of thoughtful surgeons side with Dr. Hertzler in his views on the "life history" of goiter. If they are correct, the virtual disappearance of the goiter problem is possible and can be brought about only by a realization and application of the principles we have heard expounded this morning.

DR. C. SOUTER SMITH, Springfield: In my nose and throat practice I am now taking the basal metabolic rate in all cases that are subject to colds, in all cases of chronic sinusitis, all cases of progressive deafness, and in all cases which present symptoms that cannot be explained by the findings, and I am surprised at the large number of cases of hypothyroidism that show up. If we treat them with thyroid extract they improve. Those subject to colds become normal. The cases of chronic sinusitis will not clear up since most of them need operation but they are much more satisfactory after operation if we use thyroid extract. A large number of otosclerotic cases have hypothyroidism. Many interesting cases otherwise inexplicable come under this heading; for instance, those which after tonsillectomy return complaining of pain in the throat. Usually they have a lateral pharyngitis. If we find hypothyroidism there is no better way to clear up the pharyngitis than to put them on thyroid. We find that many cases of laryngitis are also cases of mild myxedema; the voice is not clear because the laryngeal tissues are thickened. I have come to the con-

clusion that I could not practice without taking basal metabolic rates.

DR. DANIEL L. SEXTON, St. Louis: The papers of this symposium have been most complete and instructive. There are a few points I should like to stress.

First, the recognition of mild cases of hypothyroidism as brought out by Dr. Baskett is highly important. This group makes up by far the great majority of hypothyroid cases the advanced stages (cretinism and myxedema) being in the minority. There are many individuals who do nothing without a big effort with the result that their power of production is greatly lessened. Some of these individuals lack sufficient thyroxin which, when supplied in adequate amounts, increases their efficiency to a point closely approaching the normal. To recognize these mild cases is not always so easily accomplished, but usually there are one or more signs of hypothyroidism present. One cannot rely on the basal metabolic rate alone for there are many persons who have a definitely lowered basal rate who are not lacking in thyroid, at least do not give the expected response to thyroid therapy. A lowered basal metabolic rate coupled with clinical signs of thyroid deficiency is conclusive proof, while a low basal rate in itself warrants nothing more than a suspect diagnosis at the most with trial treatment under close observation.

Dr. Sloan's valuable demonstration showed without reservation the importance of breaking up that chain of thyroid disorders in families which if undisturbed ultimately results in cretinism. As he has stated, the only way to overcome this progress of generations is to recognize hypothyroidism in the expectant mother and direct treatment toward such.

Dr. Werner's work on ovarian insufficiency has shown that symptoms referable to practically every system of the body may be found when such insufficiency is present. These cases require a most careful work-up, however, because there is no reason why the woman with functional disturbances cannot have one or more superimposed organic disorders. I believe it is generally felt that the administration of whole ovarian extract and corpus luteum symptomatically benefits many of these cases, while the specific ovarian hormones although producing experimental estrus have not been as effective constitutionally. Perhaps the hormones should not be blamed as much as the clinicians who as yet have not worked out a satisfactory way to give sufficient dosage to overcome constitutional symptoms.

Dr. Kinard's paper on the use of iodine is extremely instructive, having covered a large field completely in an easily understandable manner. He has stressed the fact that surgery can often be prevented by the proper treatment of simple goiter, a point worthy of comment especially coming from a surgeon.

Any of us especially interested in these subjects can well appreciate the great amount of careful thought the essayists have given the matter just presented.

DR. EDGAR D. BASKETT, Columbia, in closing: A doctor here has asked a question in regard to giving the thyroid. We have been using the potent, desiccated form of thyroid, and in the main they have tolerated it pretty well. We have had little difficulty in administering it except in a few cases in which our attempt to bring up the basal metabolic rate to approximately normal resulted in some disturbance of the heart. These cases apparently have a normal rate lower than 100 per cent, and we have to hold them down to a rate of 10 or 12.

I think Dr. Sloan brought out some important points in regard to the mothers who are hypothyroid. We are beginning to find that some pregnant women are hypothyroid and we have put them on thyroid. A personal communication from Dr. Warfield, of Milwaukee, brings out the point that these people who came into the Middle West as pioneers after several generations have become more and more hypothyroid, so it is probable that we have something which will become more troublesome as time goes on. One of the worst cases we have had in private practice was a woman who was a hypothyroid and apparently, as Dr. Sloan pointed out, there may be a hyperthyroidism followed by hypothyroidism. Hypothyroidism is very prevalent and we must give more attention to it or we shall have more and more feeble-mindedness and mental disturbances of milder degree as time goes on.

DR. KERWIN W. KINARD, Kansas City, in closing: I want to thank my colleagues for their interesting discussions. In closing let me say that wherever iodine has been used as a prophylactic for goiter, in goiter zones or elsewhere, it seems to have worked satisfactorily.

We must not forget that older people often have an idiosyncrasy for iodine, as evidenced by iodism occurring in one form or another after having taken the drug for a short time; but the comparatively few people who are susceptible to the drug are relatively insignificant to those who take it with little or no deleterious effect, and when it has caused iodism to a patient very seldom has irreparable or serious harm been done. Therefore, iodine as a drug is scarcely ever contraindicated as a prophylactic unless the patient has a nontoxic, nodular goiter, and then one must use it guardedly.

Children and young adults bear the drug well and seldom show ill effects from small or large doses, hence school prophylaxis is very useful. Iodized salt is not so necessary in our country where most people can afford to buy iodine and pay a physician to treat them.

We are fortunate in having nature help us with cretinism. These cretins, if untreated, usually become sterile after thirty years of age and do not procreate where this natural thyroid barrier to further production of children has occurred. However, the cretins that have had some thyroid treatment may have had just enough stimulation to beget children. Nevertheless the question of cretinism is merely a civic and economic one which each country and its subdivisions should be able to handle for themselves, and while iodine is most useful, we must eliminate the factors contributory to goiter by giving them normal heredity and environment.

## SELECTIVE PNEUMOTHORAX

A REVIEW OF THE LITERATURE AND A REPORT  
BASED ON THE STUDY OF EIGHTY-NINE  
CASES\*<sup>1</sup>

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AND

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ST. LOUIS

In reviewing the history of artificial or induced pneumothorax it is only necessary to

state for our purpose that the technic as followed today is based upon the adaptation of the water manometer as first introduced by Saugman<sup>1</sup> in 1904 and upon the experience resulting from the series of 25 cases published by Forlanini<sup>2</sup> in 1906. Very little of basic importance since then has been added to or changed in the technic or in the interpretation of the anatomical, physiological and pathological phenomena, on which Forlanini so soundly anchored and brilliantly established this procedure. It is the one great advance in phthisiotherapeutics since Brehmer's<sup>3</sup> introduction of the sanatorium treatment together with Dettweiler's<sup>3</sup> scientific and systematic application of rest, fresh air and diet. Both methods have for their object functional rest for the diseased lung, the one by physiological restraint of respiration and the other by direct mechanical means.

Pneumothorax may be defined as the accumulation of air in the pleural cavity. There are two main types, spontaneous or natural and artificial or induced with the following subdivisions, complete, incomplete or partial and selective pneumothorax. It is the selective type which we are more concerned with in this paper. By the term complete is meant total collapse. The incomplete pneumothorax we interpret to mean one in which by reason of adhesion between the two layers of pleura, it is impossible to cause complete relaxation, collapse, or compression of the diseased area. The selective is a type of induced pneumothorax which permits or causes the collapse or



Fig. 1, case 4. Far advanced C, bilateral involvement. Large cavity in right apex; considerable involvement of mid-portion of left upper lobe.

\* From the Medical Department, St. Louis University School of Medicine, and the Chest Service, Mount St. Rose Sanatorium.

1. Read at the Annual Meeting of the Missouri State Medical Association, Joplin, May 11-15, 1931.



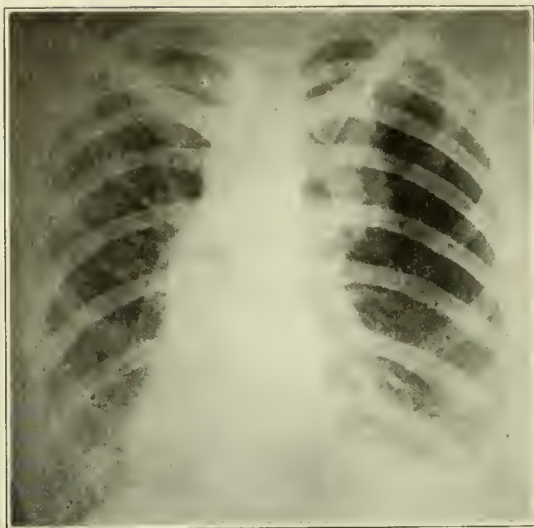


Fig. 2, case 4. Selective collapse established. Plate taken at end of inspiration demonstrating the expansion of the healthy lung tissue.

relaxation of diseased portions without seriously affecting the relatively good lung tissue present. To the late Dr. Nathan Barlow<sup>4</sup> and his co-workers credit should be given for having called attention to this type. In studying small natural pneumothoraces they observed that the diseased area alone was compressed to the extent permitted by the elastic expansile tension of the healthy surrounding lung. This they termed selective collapse. In performing artificial pneumothorax they likewise observed that the same physical law held good, namely that the air sought or selected the diseased areas. Hence, for lack of a better term, they called this phenomenon selective pneumothorax. Since their first publication a number of other observers, notably Gwerder<sup>5</sup> in 1922, Hennell and Stivelman<sup>6</sup> in 1923 and recently Cutler<sup>7</sup> have reported a series of cases treated by this method with highly satisfactory results. Hennell and Stivelman<sup>6</sup> have shown by animal experimental work that if any part of a rabbit's lung was severely injured during an attempt to induce pneumothorax, that portion of the lung could not be made to reexpand to any considerable degree, even after one week's compression, because of the inflammatory and fibrotic changes engendered by the injury. In the meantime the uninjured parts of the lung under compression could be made to reexpand to their full capacity by forced intratracheal inflation after its removal from the thorax.

The explanation advanced for this phenomenon is that the tuberculous disease causes a loss of the elastic tissue of the affected lung area together with a natural tendency to collapse and therefore does not resist the pressure

of the gas and with each inspiration expands less and less, while at the same time the healthy lung tissue expands almost to its normal limit. This results in due time to a complete collapse of the diseased area without to any extent impairing the function of the otherwise healthy lung. In other words it is the ideal type of pneumothorax and should be sought after in every case in which it can be carried out. Examination of such a case under the fluoroscope will show the healthy lung tissues expanding during each inspiration almost to the chest wall and during expiration contract down proportionate to the depth of expiration. In the meantime the affected area will remain more or less quiescent or immobile during the entire respiratory cycle. Cutler<sup>7</sup> attempts to explain this phenomenon of selective collapse on the theory of inelasticity of the tuberculous area together with the added pressure of the gas being forced by the repeated expansile action of the healthy portion of the treated lung. He terms this motion imparted to the gas as "the expansile pulmonic force." He continues further: "The expansile pulmonic force therefore, results from the expansion of the unaffected part of the treated lung on inspiration. By repeatedly compressing and forcing the imprisoned gas in the chest cavity along the path of least resistance, which is toward the diseased area, it acts as an automatic hammer, and little by little completely collapses this area, then keeps it collapsed indefinitely. Given enough time the constant hammering of this expansile force will cause satisfactory collapse of a diseased area in spite of apparently obstructing adhesions, and unyielding cavities



Fig. 3, case 4. Same as figure 2 but at end of expiration, demonstrating the contraction of healthy lung tissue without change in the diseased area.

will slowly give way and become completely obliterated without subjecting the patient to the dangers and disadvantages of complete collapse of the entire lung."

We do not wholly agree with him in this theory. He apparently has not taken into consideration the fact that the thoracic cage is not fixed and that its capacity varies in cubic content during inspiration and expiration. During inspiration the vertical diameter is increased by a lowering of the diaphragm and the transverse diameter is increased by the action of the ribs moving upward, whereas during expiration the reverse takes place, both diameters being diminished. When examining a case of selective pneumothorax fluoroscopically one will observe during inspiration that the distance between the collapsed lobe or lobes and the chest wall does not vary to any considerable degree. The healthy lung area only begins to expand after the ribs have begun to move outward and upward and the diaphragm downward, thus increasing the cubic space of the thoracic cavity. The negative pressure of the contained air must of necessity therefore become greater. This can be demonstrated during a refill by having the patient take a deep inspiration and observing the rise of the column of water to a higher negative reading. The principal reason why the diseased area tends to contract more and more during selective pneumothorax therapy is, as Barlow first stated, due to the loss of elastic tissue in the diseased area together with the increased formation of scar tissue, which of itself has a natural tendency to contract.

The complete pneumothorax is at present the type most commonly in use and if successful at all, very easy to obtain and maintain, its



Fig. 4, case 5. Moderately advanced C before pneumothorax showing marked involvement of left upper lobe.



Fig. 5, case 5. Selective pneumothorax with collapse of the diseased upper lobe with complete expansion of lower lobe. Taken at end of inspiration.

obvious drawback is that it puts out of commission the entire lung including the healthy and relatively healthy, as well as the diseased area. The lung is divided into lobes and to a certain extent they function quite markedly independent of each other. Various diseases have more or less selectivity for one or the other lobes. Our treatment therefore should be, if possible directed solely to the diseased area.

In many cases if we perform a complete collapse we do too much and increase the danger from operation and invite disaster in an individual already run down. This idea should always be carried out in any procedure concerning the diseased lung.

#### TECHNIC

The technic we employ is essentially different from that ordinarily used in the induction of a complete collapse. It is with some modifications similar to that first advocated by Barlow<sup>4</sup> and his co-workers and also by Hennell and Stivelman<sup>6</sup> and recently by Cutler.<sup>7</sup> In the complete collapse the object desired is to obtain as soon as possible a total collapse of the entire lung with injections of gas that produce a slightly positive pressure. In selective collapse we avoid if possible the obtaining of positive pressures. Therefore close attention must be directed towards the initial quantity and frequency of each refill. Also they must be carefully checked by the manometer readings and by frequently repeated fluoroscopic examinations. To achieve this it is necessary to determine and maintain an optimum intrapleural pressure. This pressure is conceded by most authorities to be about 40 per cent,





Fig. 6, case 5. Upper lobe collapsed with partial contraction of lower lobe at end of expiration demonstrating normal functioning of healthy lung tissue.

which is the lowest pressure that will bring about the necessary degree of compression with the minimal possible disturbance of intrathoracic equilibrium and consequent embarrassment of the cardiorespiratory functions. In our experience we have found this to be between 1500 to 2000 c.c. of air given in from three to five refills. As stated above the purpose is not to completely compress the affected lung, but merely to bring about a relaxation or partial compression. Our guide for this, is the use of the manometer and fluoroscope. At no time should one endeavor to obtain a positive pressure reading. The manometer should always range between zero and minus one. The refills at the onset should always be followed by a fluoroscopic examination, because by this method we are able to see what is taking place within the pleural cavity. The time necessary to establish successfully a selective collapse varies with the individual case. If cases are taken early enough and are free of too many adhesions it should not require more than a few weeks before the operator can readily determine whether or not selective collapse is possible.

Our procedure, which is somewhat similar to the one recently advocated by Cutler,<sup>7</sup> is as follows:

The initial inflation may vary from 200 to 500 c.c. depending upon the size of chest and the ease of entrance of gas. The second inflation is given two to three days later and should be approximately equal to the initial one. The third inflation usually about 500 c.c. is given three days later. After this, weekly refills varying from 300 to 600 c.c. are given, always being careful to leave a negative pres-

sure after each inflation. It will be noted at this time that we will have a complete pneumothorax. This should be maintained for about six weeks to two months, then gradually permit the lower lobe to reexpand by diminishing the amount of gas. The reason for this procedure is to make the diseased lobe more inelastic and to permit fibrosis and organization to take place in the diseased area.

Once a selective collapse has been established it is only necessary to continue the treatment at frequent intervals varying from ten days to two weeks, without increasing the pressure. During this time it is advisable to keep the patient in bed and preferably in an institution. When successful, marked improvement is immediately seen. All clinical symptoms due to toxemia such as fever, tachycardia, malaise, profuse expectoration, etc., begin to clear up. The Schilling blood count shows an immediate shift to the right, with an increase in the lymphocytes and a gradual tendency to return to normal. In other words a marked change for the better takes place in the patient from a clinical standpoint.

#### INDICATIONS AND ADVANTAGES

The ideal type of case for this method of induced pneumothorax is an early unilateral, unilobar involvement of the lungs, before permanent adhesions have developed. Successful selective pneumothorax can be established in practically every case in which a complete pneumothorax is indicated with but one exception, i. e., where the lung that is to be collapsed is completely infiltrated with the tuberculous process from apex to base. This method has many advantages over that of treatment by complete collapse, some of which follow:



Fig. 7, case 6. Tuberculous pneumonia of left lower lobe.

1. Only diseased tissue is collapsed.
2. Almost no extra work is imposed on the opposite lung.
3. Hydrothorax as a complication is rarely encountered.
4. The pulmonary circulation is much less interfered with.
5. There is relatively much less displacement of the heart and other organs.
6. Unpleasant initial symptoms rarely occur.
7. Adhesions are not ruptured.
8. Great changes in the lung tissues before and after treatment are avoided.
9. Upon termination of treatment there is less readjustment of the intrathoracic organs with the consequent danger of weakening the fibrous envelope of the tubercles.
10. Deformities, intrathoracic and of the thorax itself do not follow this method.
11. The disease of the opposite lung is not a contraindication and the treatment is therefore of very general applicability.

At Mount St. Rose Sanatorium during the past two years we have endeavored to induce artificial pneumothorax in 89 patients.

Table 1. *Type of Cases in Which Artificial Pneumothorax Was Attempted*

Number of cases	89
Minimal	0
Moderately advanced	11
Far advanced (successful)	60
Far advanced (unsuccessful)	15
Tuberculous pneumonia	3

Table 1 shows the diagnosis of this group according to the N. S. A. classification at the



Fig. 8, case 6. Selective pneumothorax with normal functioning of upper lobe at end of inspiration and partial collapse of diseased left lower lobe.



Fig. 9, case 6. Contraction of upper lobe at end of expiration. No change in the collapse of lower left lobe. Shows that even in selective collapse there is sometimes a marked displacement of the mediastinum.

onset of treatment. It will be seen that there were no cases of the minimal type or first stage.

Table 2. *Amount and Extent of Pathology Present*

Unilateral	21
Bilateral	49
Cavitation	58
Hemorrhage	14

In table 2 is shown the character of involvement from a pathological standpoint. It will be noted that the majority were of the far-advanced type with cavities present and in over 50 per cent bilateral involvement, the very ones in which the least is to be expected in the way of successful outcome. It will also be observed that in 14 cases pneumothorax was initiated as an emergency measure for hemorrhage, regardless of the stage of the disease.

Table 3. *Type of Pneumothorax Established in Seventy-Four Cases*

	Cases	Per Cent	Moderate	Far Advanced
Selective pneumothorax	20	27	50%	50%
Complete pneumothorax	16	21.6	50%	50%
Incomplete pneumothorax	37	50		
Bilateral pneumothorax	1			
Unsuccessful attempt in pneumothorax	15			

A study of table 3 shows that selective pneumothorax was carried out in 20 cases, the complete in 16 and the incomplete in 37. This would indicate that the selective type apparently has a somewhat wider field of application than the complete type. The fact that 37 or 50 per cent of the cases resulted in the incom-



plete type, merely shows that pneumothorax was carried out in these cases when they were already too far advanced to obtain a successful selective or complete collapse.

pneumonia. Even in view of the fact that out of the total number of patients entering Mount St. Rose Sanatorium 96 per cent are of the far-advanced type, we have shown that the selective

Table 4. Comparative Results and Also Results of Unsuccessful Cases as Controls

	Selective Cases 20		Complete Cases 16		Incomplete Cases 37		Bilateral Cases 1	Unsuccessful Cases 15	
Pulse:									
Elevated	2	10%	4	25%	20	54%	1	6	40%
No change	2	10%	4	25%	11	30%		5	33%
Lower	16	80%	8	50%	6	16%		4	27%
Temperature:									
Elevated	2	10%			4	10.8%			
No change	2	10%	2	12.5%	24	64.8%	1	11	73%
Lower	16	80%	14	87.5%	9	14.4%		4	27%
Weight:									
Gain	15	75%	10	62.5%	15	40.5%		8	54%
No change	2	10%	4	25%	3	8.5%		2	13%
Loss	3	15%	2	12.5%	19	51%	1	5	33%
Sputum:									
Increased					9	24.4%	1	4	26.5%
Decreased	18	90%	14	87.5%	14	37.8%		2	13%
Same	2	10%	2	12.5%	14	37.8%		9	60.5%
Positive	3	15%	6	37.5%	27	66.5%	1	7	
Negative	17	85%	10	62.5%	10	33.5%			
Dyspnea:									
Yes	3	15%	5	31%	10	33.5%	1		
No	17	85%	11	69%	27	66.5%			
Blood Schilling:									
Improved	18	90%	15	93%	14	40%		5	33.33%
Unimproved	2	10%	1	7%	23	60%	1	10	66.33%

A careful analysis of table 4 will reveal the fact that the immediate results of the three forms of pneumothorax were much better from a clinical standpoint in those cases where the selective collapse was established. Compared from the viewpoint of temperature, pulse, weight, sputum and blood pictures the selective type brought about a higher percentage of improvement than in the other two forms.

Table 5. Clinical Results of Various Types With Unsuccessful Cases as Controls

Condition at Time of Discharge or at Time of Writing	Selective Cases	Complete Cases	Incomplete Cases	Bilateral Cases	Unsuccessful Cases
Improved	6	4	10		4
Unimproved	3	2	8		1
Quiescent	10	10	3		2
Death	1	0	13	1	5
Unknown	0	0	3		3
Effusion	7	11	10		0
Empyema	0	0	1		0
Total Number	20	16	37	1	15
Effect of Pneumothorax Therapy on Contralateral Lung.					
	Selective	Complete	Incomplete	Bilateral	Unsuccessful
Spread	1	1	17		8
Improved	10	8	6		4
Stationary	9	7	14		3
Mediastinal hernia	2	6	13		0

Again in table 5 we find that the selective pneumothorax apparently gives better end-results than with any other form. Improvement of the contralateral lung in bilateral cases is the rule.

SUMMARY

One can readily see from the above tables that we had no cases which were of the minimal type, only eleven of the moderately advanced, and by far the greater number, sixty, of the far advanced, with three cases of tuberculous

pneumothorax has been highly satisfactory. We believe that, had we the opportunity of carrying out this method of treatment in the earlier stages of the disease, our end results would have been proportionately still better. It has been the trend of phthisiotherapeutists in the past to have resorted to pneumothorax therapy as a measure of last resort, but today it is our opinion based on the foregoing cases, that the proper time to carry out this method is at the very onset of the disease, when the opportunity for doing good is the greatest.

CONCLUSIONS

1. In the so-called selective pneumothorax you have all the advantages of a complete pneumothorax without its disadvantages.
2. It conforms to the modern surgical concept, namely, preserving and restoring the function of all body tissues without sacrificing healthy structure.
3. The technic is relatively simple but the maintenance of selective pneumothorax requires more attention to details than does the maintenance of the complete type.
4. We have shown that the individual lobes of the lung under certain conditions are capable of functioning more or less independently of each other.
5. In our series the percentage of selective pneumothorax obtained was greater than that of the complete, viz., 27 per cent and 21.6 per cent.
6. The indications for its application offer a wider field of usefulness. We are of the opinion that it should be given to a greater

number of patients with minimal involvement instead of applying merely bed rest. Statistics show that by far the greater number of all sanatoria patients sooner or later become subjects for pneumothorax therapy.

7. The theory of "the expansile pulmonic force" as advanced by Cutler, probably plays little if any role in the development of a selective type of pneumothorax.

8. Finally, in our series of 20 cases of selective pneumothorax we have shown that the improvement which takes place is uniform, more rapid and accompanied with less of the discomforts of the complete or incomplete pneumothorax.

We wish here to take the opportunity to express our thanks and appreciation to Dr. E. H. Kessler for his roentgenological service and also to Dr. Louis C. Boisliniere for his cooperation.

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## SURGERY OF PULMONARY TUBERCULOSIS\*1

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ST. LOUIS

The purpose of this paper is to bring to the attention of the general profession the fact that surgery is playing an important role in the treatment of patients suffering from far-advanced pulmonary tuberculosis. We are beginning to do something for that class of cases which formerly we were prone simply to diagnose, give an unfavorable prognosis and allow the patient to hang on as best he could until the inevitable end.

The surgical treatment of pulmonary tuberculosis is based upon the idea that cavities will heal more readily if the walls of the cavity are permitted to fall together. In the lung, the walls of the cavity are prevented from collapsing due to the negative pressure in the pleural space and the positive pressure within the lung. Also, in many cases, adhesions be-

tween the lung and the rigid chest wall prevent collapse.

Many ideas have been advanced to bring about the collapse of tuberculous cavities. The more important ones are: (1) The introduction of gas or other substance between the chest wall and the underlying lung; (2) the paralysis of the diaphragm on the affected side by cutting the phrenic nerve; (3) operation on the chest wall to cause a decrease in the diameter of the chest on the affected side.

Other operative procedures have been tried, such as cavity drainage to the external surface, direct medication to the diseased lung by intratracheal or intercostal applications and resection of the diseased area. None of these have been very successful. Recently, Sauerbruch,<sup>1</sup> of Berlin, and Lilienthal,<sup>2</sup> of New York, reported some success with cavity drainage.

The ideal patient for compression therapy is one in whom the lesion is of the fibrotic type with unilateral or predominately unilateral involvement with a fixed mediastinum. The general condition of the patient is of course important. The circulatory system especially should be carefully checked.

The artificial introduction of gas into the pleural space was first proposed on theoretical grounds by James Carson, of Liverpool, in 1821, but it was not until 1882 that Forlanini, of Pavia, performed the first pneumothorax. Since that time many refinements in the technic have been achieved. The use of the water manometer, first suggested by Saugman<sup>3</sup> in 1904, gave us a means of regulating the amount of intrathoracic pressure. Too great a pressure may displace the mediastinal structures and cause untold harm. In order to determine the position of the mediastinal structures and the degree of compression, the patient is fluoroscoped after each introduction of air.

The amount of air to be used in the initial injection is very important. Most authorities agree that small amounts, from 200 to 300 c.c., should be used; this permits the patient to become accustomed to the changed physiology. The initial injection is followed in from two to three days with slightly larger amounts. The amount of air and the interval are gradually increased until we have the desired degree of collapse.

The air in the pleural cavity is gradually absorbed, necessitating frequent refills which vary somewhat according to the amount of collapse we desire to maintain and more so according to the status of the individual. In order to increase the time interval between refills, which is usually two to three weeks, Archibald, of Montreal, suggested the use of oil instead of air. He used a mixture of mineral oil and

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gomenol. It has not been used over a sufficient length of time to draw satisfactory conclusions.

The results of artificial pneumothorax have been very satisfactory and the statistics of Matson and Rist quoted by Head<sup>4</sup> give some idea of the results obtained. In a group of cases in which the treatment was indicated they were able to show a reduction in the mortality rate of from 55 per cent to 25 per cent and an increase in the percentage of the clinical cures from less than 10 per cent to over 50 per cent.

Artificial pneumothorax accomplishes its results by resting and collapsing the diseased lung. Pleural adhesions often prevent complete collapse which accounts for many failures to cure.

In 1913 Jacobeus, of Stockholm, conceived the idea of cauterizing these restraining adhesions through a thoracoscope under direct vision. Through a trocar opening he inserted the lighted optic system and sighted the adhesions; then through a second trocar opening he introduced the actual cautery and severed the adhesions. Ralph C. Matson,<sup>5</sup> of Portland, Oregon, reviews his own observations in 100 cases and is very enthusiastic about the results.

The next surgical procedure of importance is the paralysis of one leaflet of the diaphragm in order to decrease the capacity of the hemathorax and decrease the respiratory excursion of the affected lung.

In 1911 Stuert, of Cologne, Germany, first advocated the paralysis of the diaphragm by cutting the phrenic nerve. In about 20 per cent of the cases an accessory phrenic exists so that single section of the nerve does not always result in a paralysis. To avoid this occurrence, phrenicectomy, or evulsion of the phrenic nerve, is practiced. The operation consists of making a small incision about 6 cms. above the clavicle and expose the scalenus anticus muscle. The nerve is usually found taking a medial course just beneath the sheath of this muscle but its position is variable. The nerve is picked up, severed and the distal end twisted out of the chest. Alexander<sup>6</sup> states that if as much as 12 cms. of the nerve are removed the branches of the accessory phrenic will be severed and a satisfactory paralysis of the diaphragm will result.

When the phrenic is severed the intra-abdominal pressure forces the thinned-out muscle of the diaphragm into the chest cavity. The amount of rise varies from one to five inches. The maximum rise takes place in about three months.

E. J. O'Brien,<sup>7</sup> in a review of 500 phrenic nerve operations, gives the following figures: In 50.5 per cent of the cases in which cavities existed prior to operation the cavities closed;

in 31.2 per cent the cavities were made smaller. Thus, in 81.7 per cent of the cavity cases the cavity either disappeared or became smaller. Two hundred eighty-eight patients had bilateral lesions. In 75 of these, or 26 per cent, the lesion in the contralateral lung healed completely. In 152, or 52.7 per cent, the lesion in the contralateral lung improved. In only 45, or 10.7 per cent, a spread occurred to the good lung or an existing lesion was activated. Of the 500 cases, 329, or 87 per cent, had positive sputum before operation and of these cases 178, or 52.2 per cent, had negative sputum after operation.

Following phrenicectomy there is usually a temporary increase in the amount of expectoration, but in almost all patients the cough is made easier and the amount of sputum decreased. Both pneumothorax and phrenicectomy may be used as life-saving operations in cases of hemorrhage. Immediate collapse of the lung on the affected side usually tends to stop the hemorrhage.

The third surgical procedure of importance is thoracoplasty. By a thoracoplasty we mean the removal of segments of the supporting bony framework of the chest and allowing the remaining soft parts to retract and thus narrow the hemathorax. Many types of thoracoplasties have been tried. As early as 1885 DeCernville reported 4 cases in which he resected as much as 3.5 cms. of each of the second and third ribs anteriorly, to collapse a cavity in the apex.

Ludolf Brauer, of Hamburg, suggested the removal of all the ribs on one side in a case in which adhesions prevented the successful introduction of a pneumothorax. In 1906, Frederick performed this operation. It was successful, but the mortality in succeeding operations was so high, due to shock, chest wall and mediastinal flutter, that the operation gradually fell into decline. Wilms, of Heidelberg, in 1911, demonstrated that by removing small segments paravertebrally a good collapse of the underlying lung could be obtained and the danger of the old Brauer-Frederick operation avoided. Sauerbruch, of Berlin, formerly Frederick's assistant, popularized this type of operation.

Brauer has always insisted that in order to obtain a sufficient collapse of the underlying lung comparatively large segments of ribs must be removed, especially over the diseased area. It is a moot question whether the short resections of Sauerbruch give as good a result as the larger subscapular resections of Brauer. Probably the most logical solution to the question is to use that type which is best suited to the individual case. Patients with large cavi-

ties or with extensive involvement will undoubtedly obtain the most benefit through the Brauer operation.

Several supplementary operations have been advocated where a paravertebral thoracoplasty has not given the desired result. One is the parasternal thoracoplasty in which sections from the anterior portions of the ribs are removed. Only recently Hedblum,<sup>8</sup> of Chicago, advocated the removal of the anterolateral portions of the ribs not removed in a paravertebral operation, thus removing all the ribs on the one side.

The results of thoracoplasty as given by John Alexander<sup>9</sup> after a study of 1,159 cases in the literature, follow:

Apparently completely cured	24.8 per cent
Clinically cured	12 per cent
Total cured	36.8 per cent
Greatly improved	8.4 per cent
Somewhat improved	16 per cent
Total improved	24.4 per cent
Total cured and improved	61.2 per cent
Unchanged	2.7 per cent
Worse	2.6 per cent
Total living and unimproved	5.3 per cent
Deaths, directly or indirectly connected with operation	14.1 per cent
Deaths from causes not connected with operation but chiefly from tuberculosis in the lung not operated upon	19.4 per cent
Total deaths	33.5 per cent
Total deaths and unimproved	38.8 per cent

We find in the above table that cure or improvement was obtained in 61.2 per cent of the cases. It must be remembered also that these cases were considered hopeless without surgical intervention.

At Mount St. Rose Sanatorium we have found that our results with pneumothorax, phrenicectomy and thoracoplasty compare very favorably with the results quoted in this paper.

One of the most important factors in the reduction of the mortality rate in operative procedures for the cure of tuberculosis is the proper selection of cases. This can be done only by close cooperation between the internist and the surgeon. It was this fact that prompt-

ed Prof. L. Brauer, primarily an internist, to become a surgeon and it is interesting to note that at the University of Hamburg the internists do all the chest surgery on tuberculous patients.

#### CONCLUSIONS

1. The more important surgical procedures in the treatment of pulmonary tuberculosis are, (1) pneumothorax, (2) phrenicectomy, (3) thoracoplasty.

2. The ideal patient for compression therapy is a young adult in whom the lesion is of the fibrotic type with unilateral or predominately unilateral involvement and with a fixed mediastinum.

3. Pneumothorax has reduced the mortality rate in selected cases from 55 per cent to 25 per cent and has raised the percentage of clinical cures from less than 10 per cent to over 50 per cent.

4. In about 82 per cent of cavity cases phrenicectomy will cause the cavity to disappear entirely or will diminish its size considerably.

5. Following thoracoplasty complete cures, or at least a marked improvement can be expected in about 61 per cent of the cases.

6. There must be very close cooperation between the surgeon and the internist in all operative procedures on tuberculous patients.

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#### DISCUSSION

DR. SAM SNYDER, Kansas City: Before we begin to speak of selective pneumothorax I think it is well to analyze the physical and physiological factors involved in doing a pneumothorax. We have a fixed bony frame, we have the movable diaphragm, a space in which the pressure is negative. The contents of the bony frame are not solid; they are colloid. When we induce change of pressure at any point in the chest the change is transmitted throughout the chest. So the pressure change that we induce in doing a pneumothorax is not selective, it is universal. Selective pneumothorax, in that sense, is not practical. But there is a factor of change which is selective, namely, reduction of volume, and that is particularly important in cases of cavitation. I think a better word than "selective" would be "incomplete" pneumothorax.



In regard to the physiology, we have three circulations in the lung: pulmonary, peripheral or systemic, and lymphatic. The lymphatic circulation has practically atmospheric pressure, and circulation of lymph probably occurs largely through the expansion and contraction of the lung during breathing. If we change the pressure very much we are sure to affect the lymphatic circulation markedly and the pressure change is not selective, it is universal. Then we can anticipate change of lymphatic circulation on the opposite side. So we can actually compress the lymphatic circulation of the lung and stop it. Tuberculosis is primarily a disease of the lymphatics and if we can stop the lymphatic circulation we can stop the progress of the disease. It is our practice not to do much selective pneumothorax but to give the patient the degree of compression that gives the best result, and that includes closure of cavities. That may necessitate a complete pneumothorax, and we are not afraid of deviating the mediastinum. In fact, we may want to do it because by deviating the mediastinum we get adequate change of lymphatic pressure on the opposite side and arrest of the lesion on that side.

DR. CHARLES W. GREENE, Columbia: I would like to speak of one phase of the operation described by Dr. Mudd. I being a physiologist have had rather unusual opportunities of observational contact with practically every phase of surgical work that the doctor has spoken of. I saw quite a number of Dr. Sauerbruch's operations and had the good fortune to see a double pneumothorax at the Laennec Hospital in Paris. Of course, in all this type of surgical work the point is to render the lung relatively immobile. In doing that by surgical methods we reduce the general level of respiratory activity. From the physiologic point of view pneumothorax appeals to me, but phrenicotomy does not, for these reasons: Phrenicotomy interrupts the entire pathway of the phrenic nerve. I presume you think of the phrenic nerve as a motor nerve, which it is. But if your history is like mine you are probably not aware that the phrenic nerve is a very important sensory pathway, and when we do a phrenicotomy we not only immobilize the diaphragm but we destroy certain groups of reflexes. Experimentally on animals and from observations on man, we find that phrenicotomy interferes with these particular types of reflexes: First, those that involve the circulation through the heart. We have experimental reasons for believing that when the phrenic nerves are cut we decidedly change the coronary circulation by interference with the autonomic reflexes. We have experimental evidence to show that by shutting off the afferent pathways through the phrenics we change the reactions that control the pulmonary vasomotor system. There is an increased vascular flow through the lung after phrenicotomy. Not only may this be an important factor in phrenicotomy, but it must be weighed as an influence during the after-treatment by this method. Certainly, cutting the phrenic nerve decidedly interferes with the reflex control of respiration. Again, phrenicotomy may weaken certain reactions that are desirable to maintain. It occurs to me that the improvement from phrenicotomy is not altogether the spectacular affair shown because the result is affected by quite a number of supplementary features of treatment that must be weighed.

DR. W. T. COUGHLIN, St. Louis: It is a very great pleasure to have lived long enough to be able to appreciate what is being done, what is being said about surgery in tuberculosis especially in tuberculosis of the lung. Dr. Mudd brings a great deal of enthusiasm and it is excelled by his ability. He has had

great advantages but it is a fact that he is too modest about what he has actually accomplished.

We know that most of these patients must come from the general practitioner, the one who is blamed if anything goes wrong and therefore he must know the truth of the matter.

There are certain surgical principles which you know as well as I do that Dr. Mudd has touched upon. The first one is that a cavity heals if its walls are allowed to fall together. You know that when applied to surgery of the bones the cavity of osteomyelitis must be allowed to have at least one of its walls fall in. In surgery of the cavity in the tuberculous lung the same principle applies, and if one of the walls of the cavity is allowed to fall in the healing of the cavity is far more likely than if it is not done. You know as well as I do that one of the great principles, perhaps the first principle, in surgery of tuberculosis elsewhere is rest and by his attempt to quiet the lung Dr. Mudd is demonstrating that principle—he is allowing rest of the diseased part and without that rest it is not likely that the disease process can be arrested.

The ability of the patient to live with one lung is a question that your mind is concerned with at the present time. It was shown long ago by Estlander and Schede that patients would live with only one functioning lung. They applied their thoracoplasty to the cure of empyema, and if those patients could live while deprived of all their chest walls, there is no doubt that patients with tuberculosis in only one lung may live even though that tuberculous lung is permanently put out of commission.

He mentioned also the likelihood of spread after the operation. When we operate on tuberculous conditions elsewhere, in certain cases the patient will die of general tuberculosis, and die very quickly. Sometimes they die of tuberculous meningitis. That is not the fault of the operation. The patient has a certain number of units of resistance and he has also a certain number of units of toxin. If we do anything to the patient that will materially lessen the number of his units of resistance we give advantage to the units of toxin, and if by our method of operation we lower that patient's vitality then the units of toxin have the ascendancy and the day will be with the disease.

DR. J. W. BARSON, Joplin: I remember in the old days we thought if a patient had tuberculosis of the lungs he was doomed for an early death and he usually did die soon. I, myself, carried that view for a long time.

Like Dr. Coughlin, I am glad to have lived to see the day when we have something to offer the patient with lung cavities on account of tuberculosis. I think pneumothorax is the first thing to try. We should get away from the idea that rest is all the tuberculous patient needs. We must go further and give them something better than just rest. I like the idea of surgery, if the patient can stand it, because I think it places him in a better position than by pneumothorax. In pneumothorax we have an open cavity in the chest and that is something we should get away from entirely.

By work on the phrenic nerve we can control the time it paralyzes the diaphragm by the degree to which we carry this work. If we want six months' effect simply crush the nerve. This puts it out of commission for six months or more. If we want a longer time, resect an inch of the nerve, and if you want the effect to continue indefinitely, do as complete an avulsion of the nerve as possible.

I think we have reached the time when all of us should recognize the great benefit that tuberculous patients may receive from surgical procedures.

DR. W. W. BUCKINGHAM, Kansas City: There is nothing new or bizarre in surgery of pulmonary tuberculosis. We fully appreciate that we apply one of the principles of treatment that we have known for years, and that is rest. The lung is an elastic organ and moves with expiration and inspiration. If you stretch a rubber band with a hole in the center, as you relax the rubber the hole grows smaller. That happens when you do a phrenicectomy. You allow the diaphragm to rise, the scar tissue and fibrosis has a chance to progress and completely close down the cavity. The important thing in any treatment of tuberculosis is to get the cavity closed no matter whether by rest, pneumothorax, thoracoplasty, or any other surgical procedure. We know that in 80 per cent of patients who are fortunate to close their cavity by rest alone within three years after getting up the cavity is open again. With the operation of phrenicectomy we have completely paralyzed the diaphragm of that lung, and when the patient gets up and begins to carry on his work the diaphragm will not move and tend to pull the cavity open again as it will if the diaphragm has not been paralyzed.

We get spreads following operation, we get spreads with the patient in a sanatorium under the highest type of sanatorium regime, we get spreads from a cough. The operation has nothing particularly to do with the spread.

I believe the operation of phrenicectomy should be performed as early as possible. There is no sense in keeping the tuberculous patient three months, six months, nine months, getting better one week and not so well the next, with the cavity gradually getting larger. If after you have the patient under treatment for three months you find there is no definite improvement you should change that plan of treatment and do the simplest possible therapeutic procedure that will attain the end of closing the cavity. There is no controversy between the surgeon and the medical man. There is not a surgeon in the country who would attempt thoracoplasty before pneumothorax has been tried.

The figures of Alexander were compiled in 1925 when he wrote his book. I was working with him the last two years and we have compiled some figures and find the figures he first gave are now inadequate. We are getting a higher percentage of cures without phrenics and thoracoplasties.

DR. ALPHONSE MCMAHON, St. Louis: The point that has impressed itself upon me in connection with the therapy of tuberculosis is that any procedure followed must be based upon the conditions existing in the patient at the time you observe him. I do not think we can lay down absolute rules for therapy in tuberculosis, whether it be the simplest form used such as rest or the most complex form such as the surgical procedure recommended by Dr. Mudd. Any therapy must be considered in relation to the duration and severity of the disease and also to the reaction of the patient at the time of the observation. In other words, therapy to some extent is based upon the personal equation, the type of patient, his constitutional state and general nervous make-up, and also upon his economic condition. We must do something to restore the patient to his normal life as soon as possible and our system of therapy must be so complete as to apply to the various degrees of activity, from the milder to the most complex.

I was interested in Dr. Henske's presentation of partial pneumothorax. I would like to apply the term "rational pneumothorax" to this procedure, as

it appears to me to be a much more logical way of using pneumotherapy than that followed in the "all or none law" of complete collapse. It might also be termed "optimum pneumotherapy." I do not think there is any disagreement between Dr. Henske and Dr. Snyder on that point. Dr. Snyder has stressed the necessity of using a pneumothorax that is most effective in a given case. That method which is adequate to heal the tuberculosis, produce the least physiologic disturbance in the patient, and restore him to his normal state as quickly as possible is the procedure we should adopt. If partial pneumothorax does not produce a satisfactory result, if for example we cannot collapse a cavity sufficiently to permit a complete restitutio ad integrum, then we must adopt a more rigorous procedure which is complete collapse or some form of surgical therapy. I think we must evaluate each form of treatment in relation to a given patient and not lay down hard and fast rules for a specific form of therapy in all cases of tuberculosis. One act must be constantly kept in mind—that we must treat the patient and not the disease as such.

DR. HENSKE, in closing: I merely wish to emphasize a few of the more important points brought out in this paper. Undoubtedly, rest is the keynote in the treatment of pulmonary tuberculosis. Not so long ago Dr. Allen Krause, one of our leading authorities, in an excellent essay on "rest," made the assertion that if two patients had to make a choice between rest and fresh air as a means of getting well, the one that selected rest, even though carried out in a poorly ventilated room, would stand by far the better chance of recovery than the one who chose fresh air and exercise in the open. He gave this illustration solely for the purpose of calling attention to the paramount importance of rest as the therapeutic agent. It is obvious that all modern surgical procedures on the chest which have been devised or developed during the past two decades, viz., phrenicectomy, thoracoplasty and intercostal neurectomy, to mention only a few, have as their chief if not sole underlying motive immobilization of the affected lung. They stand out as mute evidence of our failure to utilize to its fullest advantage rest in the earlier stages of this disease.

We have become firmly convinced that the most important thing about rest is its judicious and proper application. Therefore, for practical purposes we have classified its application under three headings, viz., (1) indirect method, (2) direct method, (3) the combined method.

By the indirect method we imply bed rest in which the patient's entire body is placed at rest thereby lowering its activities and indirectly applying rest to the diseased lung.

By the direct method we have in mind pneumothorax therapy whereby the diseased lung is directly immobilized and put at rest by the pressure of the artificially induced gas in the pleural cavity.

The third method is the simultaneous application of the above two, especially during the earlier stages of the disease.

In routine sanatorium practice a patient in the early stages of the disease is usually placed on bed rest for an indefinite period of time, ranking from a few weeks to months, until virtually all symptoms and signs of activity have subsided.

Unfortunately, not all patients completely respond to this method and the attending physician must then decide to carry out if feasible the second method, i. e., artificial pneumothorax. Pneumothorax at this stage of the disease is usually only partially successful because the most opportune time for its



administration has already been permitted to escape. This is true because it is a common observation that although the lesion in the lung may show a tendency to heal yet at the same time adhesions develop or make their appearance between the visceral and parietal pleurae. These adhesions will always be found located over the site of the involved lobes. In many instances the adhesions have become so firmly developed that their separation by artificial pneumothorax is impracticable the usual result of such an attempt being an unsatisfactory incomplete pneumothorax with compression of the healthy lobes and only partial or no collapse of the diseased area. Heretofore complete pneumothorax has been considered by most authorities to be too radical to apply to the early cases where only part of one lobe is involved because you are putting out of commission an entire lung and also because of the ever present danger of hydrothorax developing. Therefore we believe that with the results shown here with the so-called selective pneumothorax, this serious objection is done away with. The ideal method of treating all early cases is to immediately institute a selective collapse together with placing the patient on absolute bed rest until all symptoms both clinical and subjective have subsided. If we are able to carry out this procedure in a given number of early cases in the future we feel confident that recoveries will range between 70 and 90 per cent.

DR. MUDD, closing: I quite agree with Dr. McMahon that we must treat the patient. If he has a certain type of disease we must select the procedure that will give the best results.

In regard to Dr. Greene's remarks on a phrenicotomy, it is true that when we cut the phrenic nerve we change the patient's physiology quite considerably; but if a man has a crushed hand we often amputate it and the man is incapacitated in that respect. Here we are trying a life-saving means and I think phrenicotomy is a life-saving measure.

## ESSENTIAL DYSMENORRHEA AND ALLERGY\*

D. R. SMITH, M.D.

ST. LOUIS

According to Graves, essential dysmenorrhea is a disturbance that is characterized at the time of menstruation by severe cramp-like pains in the lower abdomen from which the patient is entirely free during the intermenstrual period. Graves points out that this form of dysmenorrhea is distinctive and must not be confused with the kind of menstrual pain resulting from aggravated menstrual congestion complicated by various pelvic disorders, particularly salpingitis and other pelvic inflammations. To the latter type the term secondary or acquired dysmenorrhea is given. Graves mentions that essential dysmenorrhea is one of the most common gynecological diseases but comparatively little is known concerning its etiology. In discussing the etiology, he tells us that the old authors regarded the cause of dysmenorrhea as entirely mechanical.

Other writers divide dysmenorrhea into three classes: an organic form, depending on obstruction, a congestive and a neuralgic form. Graves states that Schroeder thinks there may be an excessive irritation of a vegetative nervous system by toxic substances that the function of menstruation evokes in the blood. This theory is supported, Graves suggests, by the relief that is often secured from the administration of atropine. He also mentions the so-called nasal dysmenorrhea which has been described by Fliess and elaborated by Schaeffer. Pains of dysmenorrhea have entirely disappeared by the application of cocaine to the tuberculum septi of the nose which is designated as the genital spot. This is interesting to mention, because one of the cases of dysmenorrhea which was cured was found in relationship to a nasal allergy. In this rather detailed review of the causes of essential dysmenorrhea no mention is made of the relationship of allergy to this condition.

References in the literature concerning the relationship of allergy to essential dysmenorrhea are very scanty and so far as I am able to make out there are no detailed references. Duke, in his monograph on asthma and allergy, makes a statement concerning the disturbances of menstruation with allergy. He has rather frequently observed patients having symptoms as a result of general reaction. He states that a wide variety of symptoms observed in these cases have disappeared after appropriate treatment. In one food sensitive case menstruation, which had been not only extremely painful but had occurred twice monthly for years, became completely normal and occurred at four week intervals upon the avoidance of foods to which the patient reacted.

Cooke says dysmenorrhea or rather untimely and scanty menstrual flow following acute cramp-like pains in the lower abdomen, is recorded in two women 26 and 38 years respectively. In both these cases, Cooke states, the symptoms were part of an immediate reaction with asthma, coryza and urticaria, the menstrual flow itself not being apparent until three hours later and lasting one day.

Rowe, in an article on food allergy, confirms the opinion of Duke that menstruation can be disturbed and may be irregular and painful by food sensitization.

The statement of Duke that the patient had been relieved of all pain at the menstrual period following dietetic treatment for allergy, impressed me very much. As I had the opportunity of studying a good many patients with es-

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sential dysmenorrhea I thought it would be interesting to try out his idea. The report here consists of 12 complete cases. The patients complained of three symptoms: dysmenorrhea, mucoid vaginal discharge and irregular menstruation. All were nulliparous women ranging from 18 to 34 years of age. They have been under observation for from three to eighteen months. The dysmenorrhea complained of had existed for varying periods of years; in some since onset of menstruation, in others it came on well after the period had been established. The mucoid discharge varied from just a noticeable amount to the demanding that a napkin be worn constantly. The irregularity of menstruation varied from six weeks to six months. The patients' occupations were, stenographers, college students, and two were unemployed.

Skin tests for the common foods were made by the scratch method. The reactions were read in 30 minutes and consisted of small elevated areas surrounding the scratch with little or no erythema. I believe most of these reactions would be considered doubtful or negative by those accustomed to seeing the tremendous wheels and areas of erythema in children and some asthmatics. The substances that gave a positive reaction were omitted from the diet beginning one week before the expected date of and during menstruation. The foods that most frequently gave positive reactions were wheat, eggs, milk, beef, chocolate, nuts, fish, beans, pepper, cauliflower and cabbage, in the order named. The reaction was visible in six hours and usually still present in 12 hours. Of 12 cases studied, eight state that they are free of all pain at the menstrual period and go about their business just as usual. Four have received only partial relief although they are able to continue their usual work, take acetylsalicylic acid, hot drinks, etc., for part of the day. For this group, I believe that my tests have not been extensive enough. Tests should be made for inhalant and many other substances that are undoubtedly responsible for allergic manifestations. A brief history and results of the twelve cases follow.

#### REPORT OF CASES

Case 1. E. W., aged 21, student, single. Severe cramps first day of menstruation. Mucous vaginal discharge. Brother has nasal allergy; an aunt has hay fever. Menses: onset at age 12 or 13, always regular (28 to 30/4 days). Onset about three years ago with cramps a few hours before and during the first day of menstruation. About the same time noticed a small amount of mucous vaginal discharge every few days. Patient well developed, muscular. Scratch skin test showed a positive reaction to

wheat, eggs, beef and oranges. With these omitted from diet, she has been free from pain for four menstrual periods. The discharge has practically stopped. Refused to eat foods to see if dysmenorrhea would return.

Case 2. G. M., aged 24, student. Severe cramps for three days at menses. Profuse mucous vaginal discharge. Menses: onset at age 11, never regular (24 to 35/3-5 days). Always cramped and had vaginal discharge. Had to go to bed one to three days each month. Patient underdeveloped, undernourished and poor musculature. Scratch skin tests gave positive reaction to wheat, beans, cabbage and cauliflower; milk questionable. With these omitted from diet she was free of pain for two months. Reproduced third month after eating freely of wheat and milk.

Case 3. D. P., aged 24, married, stenographer. White mucous vaginal discharge, painful menstruation. Menses: onset at age 12 (28 to 30/3-4 days). Since October, 1929, 28-60/3-6 days. Severe cramps one to four days. Discharge began with irregular and painful periods. Had to wear napkin constantly. Married two years; no pregnancies. Nose: turbinitis, enlarged, red, boggy, considerable mucus. Patient well developed and well nourished. Moderate amount of clear mucus in vagina and cervix. Cervix one and a half times normal size. Corpus, nulliparous, first degree retrodisplacement, freely moveable, quite tender. Positive skin reactions to milk, rye, pepper, beans, eggs, orris root and horse dander. Periods regular and free of pain and vaginal discharge practically stopped for period of three months. Not heard from since.

Case 4. M. A. R., aged 20, single, stenographer. Painful menstruation. Menses: onset at age 12 or 13, regular (28-30/4-5 days). Severe cramps for one day and part of second day. Basal metabolism, minus 10 per cent. Cervix small, conical. No evidence of stenosis. Corpus slightly smaller than normal. Dilatation and curettage one and a half years ago. No improvement. Known to be codeine sensitive. Of her own volition, went on egg-free diet and did not have dysmenorrhea for two months. Not heard from since.

Case 5. F. D., aged 34, single, secretary. Amenorrhea, vaginal discharge, painful menstruation. Menses: onset at age 16 (28-90/3-5 days). Severe cramps for two days before and during first day. White mucous discharge since five or six years ago, always profuse. Has had to wear napkin most of life. Moderately profuse vaginal and cervical mucous discharge; cervix twice normal size, eroded over three quarters of surface. Corpus normal size, shape, position and mobility. Both ovaries palpable but slightly tender. Positive skin reactions to milk, egg, wheat and chocolate. Was regular and free from cramps for three months after omitting above foods. Discharge practically stopped; not seen since.

Case 6. M. L. J., aged 20, clerk, single. Cramps at menstruation for from few hours to three days. Small amount of vaginal discharge. Menses: onset at age 13 or 14. Regular (28-30/3-4 days). Onset of pain: about one year after menses began. Not severe until about four years ago. Since then has been incapacitated for from one hour to a full day because of pain. Every few days notices a little mucous vaginal discharge. Positive skin reaction to eggs, chocolate, beans, asparagus, beef; milk questionable. Following restricted diet has been free of pain for past two months.

Case 7. M. F., aged 18 years, student, single. Cramps first day of menstruation. Menses: onset at age 12 (28-30/4 days). Always regular. Has had



cramps during first day of menstruation since onset; sometimes has to go to bed for half a day; always has discomfort. For five or six years has had some mucous vaginal discharge, never bad. Positive skin tests to eggs, nuts, peas and beef. For two periods has been free of pain. Vaginal discharge reduced about half.

Case 8. M. F., aged 19, student, single. Painful menstruation. Menses: onset at age 11 or 12 (28-42/6-7 days). On one occasion missed six months. About every third period has to go to bed for a day because of pain. Always feels quite bad. Has some vaginal discharge. Three or four years ago had profuse mucous discharge. Positive skin tests to beans, nuts, chocolate, cabbage and cauliflower. Has been free of pain for two menstrual periods.

Case 9. F. G., aged 24, clerk, married six months. Severe pain at menstruation. Appendectomy 2 years ago. Menses: onset at age 12 (28/4-5 days). Never pregnant. Onset about eight years ago with cramps the first and part of second day. For past two or three years has always had to go to bed for one day. Until three years ago had mucoid vaginal discharge since early childhood. Very little now. Small amount of mucus in vagina, some coming from cervix. Corpus normal and a little more tender than usual. Positive skin test to milk, beans, beef and cabbage. Has had two menstrual periods with only slight pain.

Case 10. M. L. H., aged 21, student, single. Pain at menstrual period. Menses: onset at age 11 or 12. Pain has gradually grown worse. Now it is quite severe first day and part of second day. Never noticed discharge or any irregularity of menstruation. Positive skin tests to egg, wheat, nuts and milk. Has had two comfortable periods although there was a little pain.

Case 11. S. H., aged 26, secretary, married. Painful menstruation. Menses: onset at age 12 or 13 (28-40/5-6 days). For past six or eight years has been having severe cramps first day and some the second day of menstruation. For past four or five years pain has been a good deal worse. For 8 or 10 years has had slight mucoid vaginal discharge. Married two and a half years, never pregnant. Moderate amount of mucus in vagina and cervix, cervix slightly enlarged, small area of redness about os. Corpus normal size, shape, position and mobility though quite tender. Both ovaries palpable, the left one and a half times normal size. Positive skin tests to wheat, egg, nuts and beef. By omitting these foods she has had two menstrual periods free of pain and one with slight pain.

Case 12. D. H., aged 26 years, school teacher, single. Painful menstruation. Menses: onset at age 12 or 13 (28-40/5-7 days). Has had some pain since onset of menstruation. For past six or seven years pain has been almost unbearable for one to three days. Always in bed one day. The incapacity to teach during menstrual period caused her to lose position at one time. Had dilatation and curettage two years ago with no relief. Some cervical mucus. Cervix nulliparous, admits sound freely; corpus second degree retrodisplaced. Normal size and shape. Pressure and mobility very painful. Positive skin tests to egg, wheat, milk, nuts; chocolate questionable. Upon omitting these substances has had two periods free of pain and three periods with some pain but not severe enough to cause her to go to bed.

#### CONCLUSIONS

We feel that the results of this series are very striking and lend support to the con-

tention of Duke that there is a definite relationship between allergy and dysmenorrhea. It is important to consider the question of allergy in all cases of essential dysmenorrhea. It should at least be ruled out.

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### A STUDY OF THE URETER WITH UROSELECTAN IN PREGNANCY\*

GREY JONES, M.D.

ST. LOUIS

A knowledge of the behavior of the ureter in pregnancy is not only interesting but is also of practical importance. It is generally accepted that pyelitis, which is so frequently a complication in pregnancy and the puerperium, has a direct relationship with certain physiologic changes that take place in the ureter during gestation.

Cruveilhier in 1843 was the first to notice that in women who had died during the last trimester of pregnancy the ureters were regularly found dilated at postmortem. In the living, dilated ureters in pregnancy were likewise noted in the course of operations. More recently, as the injection of sodium bromide and other opaque substances into the kidney pelvis became popular, a dilatation of the ureters in pregnancy could often be demonstrated by the roentgen ray. Inasmuch, however, as ureteral catheterization and injection of fluids interfere to a certain extent with the natural conditions, it has seemed to me that intravenous pyelography with uroselectan might enable one to study the urinary tract in pregnant women without any distortion of the passages. In a consideration of the subject a number of questions present themselves, viz.:

1. Is the ureter dilated in every pregnancy and at what stage of pregnancy does it first occur?
2. Is one side more often affected than the other, or does the dilatation occur bilaterally?
3. Is ureteral dilatation more marked in primiparous or in multiparous women?
4. Can such a study contribute anything toward finding the cause of ureteral dilatation?
5. What relationship if any exists can be

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found between pyelitis and ureteral dilatation by intravenous pyelography?

6. Is it possible to visualize in a roentgenogram the urinary tract of the fetus in utero by intravenous pyelography of the mother?

I cannot hope even to attempt answering all these questions because my studies have not yet progressed far enough and because certain technical difficulties have slowed down my work for a while. I must, therefore, ask you to accept this paper merely as a preliminary report.

I need not go into detail on the technic of intravenous injection of uroselectan since the method at present occupies the center of interest and is frequently described and discussed. I will only mention that the technic as proposed by the originators of the method, Von Lichtenberg and Swick in 1929, calls for roentgenograms at thirty, forty-five and seventy-five minutes, respectively, after injection.

I hesitated to photograph my patients three times because of the possibility of doing harm to the fetus by frequently repeated roentgen ray exposures. This possibility seemed particularly great in the early months of gestation. For this reason I exposed each case only once, namely, at forty-five minutes after injection.

The earliest stage of pregnancy in which I have visualized the ureter was six weeks and in all there were four cases examined before the twentieth week. In none of these did I find dilated ureters. This failure was possibly due to technical errors which I hope to avoid in future. The earliest moment at which I found the ureter dilated was the twenty-second week



Fig. 1. Primigravida of 22 weeks' duration showing beginning dilatation of both renal pelves and the upper part of the ureters.

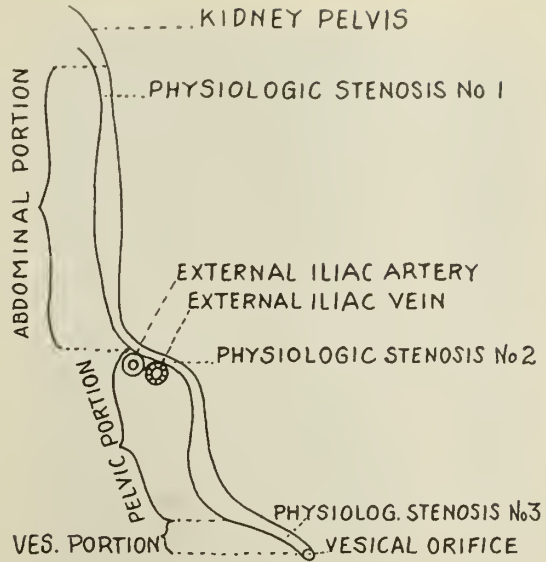


Fig. 2. Diagram demonstrating the three points of physiologic stenosis in the ureters.

which I noticed in two primiparous women (fig. 1). However, this cannot be taken to exclude the possibility of dilatation at an earlier stage because, I must repeat, my observations are still too few. As to the frequency of dilatation, the ureter was found dilated in eight of the twelve cases. The right ureter was dilated in all of them, the left only in six. The right side, therefore, was more frequently involved than the left side, which corresponds with all previous clinical conceptions.

The dilatation of the kidney pelvis was analogous to that of the ureter; that is to say, whenever the ureter was dilated the corresponding kidney pelvis was also dilated. Only in one case of right-sided ureteral dilatation did the kidney pelvis appear to be normal.

I refrain from drawing any statistical conclusions from such a very small number and therefore leave the question of preponderance of one side over the other in abeyance. Neither can I say more than that concerning dilatation in primiparous and multiparous women.

I hope at some future date to approach the question, Can such a study contribute anything toward finding the cause of ureteral dilatation? I will here merely point out that the ureter shows three physiological points of stenosis (fig. 2), namely, at its vesical entrance, at the kidney pelvis and at the point where it crosses the big vessels at the pelvic rim. These natural landmarks divide the ureter into a pelvic and an abdominal part, and of these the abdominal portion, as a rule, becomes more markedly dilated in pregnancy than does the pelvic part.

The cause most frequently assumed is pressure of the uterus, and the fact that dilatation occurs more often on the right is explained by





Fig. 3. Primigravida of 32 weeks' duration presenting a bilateral dilatation of the ureters and kidney pelvis. The condition is more pronounced on the right side.

the right-sided twist which every uterus undergoes in the latter part of pregnancy. This theory of pressure from without has been doubted by numerous observers, among them, to men-



Fig. 4. Primigravida of 33 weeks showing a bilateral dilatation of both ureters and renal pelvis. On the right side is a double ureter. This was discovered 7 years ago by the use of the ureter catheter. It is here clearly demonstrated again by the uroselectan method.

tion only two recent ones, Hofbauer and Duncan. Hofbauer believes the dilatation occurs early and that it is due to an obstruction produced by the normal hypertrophy and hyperplasia of the musculature in the pelvic portion of the ureter. Duncan also believes that it is an early finding and cites the case of a multipara of six weeks' gestation with dilatation of the ureter and the renal pelvis; another case, a primipara, showed dilatation at ten weeks. He attributes the cause to an obstruction produced, first, by the early increase of vascularity of the cervix and parametria with consequent congestion and pressure; second, to the congestion and dislocation of the vesical trigon and, third, to the increased pelvic pressure produced by the growing uterus. Here again, I am not yet in a position to express any opinion of my own from a study of my pyelograms.

In order to establish the relationship between pyelitis and ureteral dilatation I expect to use uroselectan at the earliest opportunity and thereby gain personal experience in this part of the study.

The employment of uroselectan in pregnancy seems to me a very obvious procedure yet I was surprised to find that, aside from two French authors who had exhibited two plates and more recently a German investigator who has done some similar work, no one has contributed to this subject in gynecological or obstetrical literature.

In conclusion, I wish to state that I fully realize how fragmentary my report is, but I have ventured to bring it before you hoping that it might stimulate others to work along similar lines and thus enable all of us to gain further insight into the physiology and pathology of the ureter in pregnancy.

N. B. I wish to thank the director of the department, Dr. George Gellhorn, for his valuable help and suggestions in this work and the Schering Corporation for their liberality in supplying uroselectan.

713 Metropolitan Building.

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#### CORRECT CROOKED TEETH DURING EARLY AGE

Crooked teeth are more easily straightened at a very early age, says *Hygeia*. The teeth are better adjusted before the adjacent teeth begin to crowd closer to them, taking up the surplus space.

# THE JOURNAL

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AUGUST, 1931

## EDITORIALS

### THE FIGHT FOR PURE FOOD AND DRUGS

The Federal Food and Drugs Act, popularly known as the Pure Food Law, was twenty-five years old June 30. President Theodore Roosevelt on June 30, 1906, signed the Act which was specifically designated "for preventing the manufacture, sale, or transportation of adulterated or misbranded or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein."

The wholesome effect that this revolutionary statute had upon the food and drug industry cannot be realized today by those who are not familiar with the conditions that prevailed at the beginning of the twentieth century. Commenting on a quarter century of regulatory work under the statute, Dr. W. G. Campbell, chief of the Food and Drug Administration, recently said:

Before the law was passed the food and drug industry picture was in the chromo stage. As a result of crude methods in food manufacture the buyer suspected commercially prepared foods, and with reason. The medical quack and the patent medicine charlatan plied their trade from the itinerant buckboard and the mixing tub. Swampweed nostrums, worthless in the treatment or cure of disease, were sold everywhere. Commercially packed foods were usually adulterated, sometimes with dangerous chemicals such as ingredients of dyes and preservatives. So unethical were the practices of some food manufacturers and dealers that the many honest producers had little opportunity of profiting by the sale of quality goods.

The passage of the Pure Food Law marked the beginning of a great change for the better in food and drug manufacturing. A carry-over of opposition to the bill, inability to promptly readjust manufacturing practices, and the lack of technical means of detecting all forms of adulteration delayed immediate correction. Government scientists devoted attention to the formulation of analytical methods, other Federal officials seized products found to be in violation of the law, prosecuted offenders, and educated the trade in improved

processes. Losing much of its earlier distrust the public increased its purchases progressively with improvement in the quality of the goods. From comparatively small beginnings the food industry grew to a business which now manufactures food products amounting annually to several billion dollars in value. Concurrently, there was a growth in the drug manufacturing business whose annual products are worth nearly 400 billion dollars.

Bitter and violent was the opposition to the passage of the Pure Food Law, nor did the objectors cease maneuvering to bring it into disrepute or have it repealed for a number of years after it became operative. Today, however, any effort even to cripple the effectiveness of the law not to mention an attempt to repeal it would be frowned upon most vigorously by the food and drug manufacturers themselves as well as by the people. As honesty, loyalty and honor are inborn qualities, no law can instill satisfactory substitutes in those unfortunates who have entered this world devoid of the happy influence of these attributes. Violations of the law therefore are numerous but they are quickly discovered and the perpetrators punished before the people suffer damage.

The Food and Drug Administration under the Department of Agriculture not only seeks out the violators of the law and destroys impure products but one of its major activities is to assist manufacturers to keep their products in compliance with the Pure Food Law and to protect the honest manufacturer against unfair competition with misbranded and adulterated foods, drugs and other articles that come within the purview of the law.

Working toward the same goal as the Food and Drugs Act are the Council on Pharmacy and Chemistry, the Bureau of Investigation and the Committee on Foods of the American Medical Association. The Council on Pharmacy and Chemistry has been a pioneer in efforts to protect the medical profession and the public against fraud, undesirable secrecy and objectionable advertising in connection with proprietary medicinal articles.

Cooperative with but entirely independent of the governmental forces to safeguard and protect the consumer from economic fraud and bodily harm, the Bureau of Investigation of the American Medical Association has been equally effective for the public welfare by its unrelenting exposure of quackery in relation to the health of the people. The Bureau not only exposes fake foods, fake drugs, but fake doctors, fake institutions, medical, semi-medical and so-called medical. When first established the Bureau rarely received an inquiry from nonmedical persons concerning the purity of a food or drug or the honesty of an institu-



tion catering to the sick, but today letters from lay sources far exceed the number that come from physicians and medical societies. To these two influences, the Pure Food Law and the Bureau of Investigation, may be attributed the marvelous clean-up that has swept the advertising columns of self-respecting newspapers free from false, fraudulent and untrue statements about the medicinal articles they accept for publication.

The improvement in package and product in both drugs and foods has been noteworthy. The manufacturers as a rule have seen and accepted the advantages of decency in the conducting of their business. The Pure Food Law, however, does not yet restrain the manufacturer who has little regard for the truth in his sales promotion. He may be meticulous in observing the law about packaging but on billboards, in newspapers and magazines and through other publicity media he can indulge without let or hindrance in the most blatant claims of the medical quality of his stuff because the law prohibits untrue statements on the label and the circulars accompanying the package only. On this account as well as for other reasons the American Medical Association organized the Committee on Foods to take cognizance of the published claims for dietary articles so that in addition to misbranding and adulteration misrepresentation also may be averted.

Dominant in the fight for pure foods and drugs was the late Dr. Harvey Washington Wiley, chief chemist of the United States Department of Agriculture during the period of the fight for the Federal Act, and to him should go much of the credit for the passage of the law and its enforcement. "A very mountain among men, a lion among fighters," says an editorial in the *Journal of the American Medical Association*, and the *New York Sun* described him as the "chief janitor and policeman of the people's insides."

The coming of age of the Food and Drugs Act marks the culmination of a quarter century of very extraordinary progress toward the protection of public health which is an earnest of greater progress in the future.

#### BODY MECHANICS IN RELATION TO HEALTH

Prompted by the importance accredited to body mechanics by the section on medical service of the White House Conference on Child Health and Protection February 19, 20 and 21, the St. Louis Tuberculosis and Health Society in cooperation with a medical committee of

sixteen physicians sponsored a posture contest in St. Louis July 8, 9 and 10.

The contest was open to children between the ages of 6 and 12 and 175 children were entered. Separate days were set for girls, boys and Negro children. The children were given preliminary examinations and silhouette photographs were made of their posture and from these the posture was classed as excellent, good, poor or bad. Those in the excellent class were called for reexamination and two winners were selected.

Two hundred years ago Andry, then 80 years old and dean of the Faculty of Medicine at Paris, maintained that most of the maladjustments of childhood and many of the ills of later life could be attributed to the wrong use of the body and to faulty body mechanics, but until within the last twenty-five years he had few disciples. Today, body mechanics is recognized as an important phase of child development and health, and faulty posture in the child a causative factor of ill health in his adulthood.

Various surveys and statistics were presented to the section on orthopedics and body mechanics of the White House Conference, notably surveys by Brown and Lee of entering classes at Harvard, by Cook at Yale, by Thomas and Lindner at Smith, the Chelsea (Massachusetts) survey of children from 5 to 18 years of age, and the statistics on young and middle aged men during the draft in the World War. The figures in all the reports were consistent in showing that approximately 80 per cent of the members of each group were classed as poor or bad posture.

One of the purposes of the Chelsea Survey was to ascertain whether training in the rudiments of good body mechanics during a school year without disturbance of the regular curriculum would present evidence of greater improvement in health, nutrition and morale among the children so trained than would be found among control groups of about the same numbers and ages who received the regular calisthenic-prescribed physical exercises but no postural training. The conclusions of those reporting were, (1) that favorable results may be attributed to posture training; (2) that posture training and the maintenance of correct posture contributed to the health and efficiency of normal grade school children.

In the department of health and physical education in the Los Angeles city schools body mechanics and posture are stressed and begin in the kindergarten. Education in body mechanics is an integral part of the regular course of study in physical education in the public

schools in Boston. Replies to questionnaires sent out by the conference showed that California, Delaware and Utah place training in posture and body mechanics in the physical education program in all the preparatory schools of those states.

Summarizing the clinical evidence the report showed that, (1) failure to gain weight and disturbances of digestion in spite of appropriate and adequate diet and favorable living conditions are frequently associated with poor body mechanics; (2) if there be present no organic lesion, weight tends to increase and digestive disturbance to disappear as poor body mechanics is changed to good body mechanics; (3) irregular and insufficient bowel movements tend to become regular and ample with the acquirement of good body mechanics; (4) cyclic vomiting and certain presumably toxic crises have ceased concomitantly with the correction of poor body mechanics; (5) increase in alertness and resistance and a sense of well-being are usually associated with the change from poor body mechanics to good body mechanics.

The posture contest in St. Louis was not conducted as a statistical survey but as a means of interesting children in correct posture because the tuberculosis society believes that good body mechanics tends to prevent tuberculosis. A boy and girl were selected as being the most nearly perfect in posture and received awards. All children entering the contest were given photographs with printed instructions on how to correct defects. The society plans to have the children return within a year to determine whether any improvements have resulted.

The examining committee in the contest was composed of Drs. A. B. Day, T. C. Hempelmann, C. H. Crego, J. A. Key, and J. Archer O'Reilly. The medical committee included Drs. D. P. Barr, Howard H. Bell, T. P. Brookes, E. J. Goodwin, W. W. Graves, J. H. Humphrey, C. E. Hyndman, F. A. Jostes, Ralph A. Kinsella, M. L. Klinefelter, Guy A. Magness, Hugh McCulloch, F. H. McKeon, J. Edgar Stewart, C. A. Stone and Borden S. Veeder. The Shriners' Hospital for Crippled Children had charge of making the pictures.

#### THE STATE'S SERVICE FOR CRIPPLED CHILDREN

The Missouri State Crippled Children's Service at the University of Missouri hospitals at Columbia was begun July 11, 1927, and at the close of the year 1930 a total number of 1,343 handicapped children had been aided.

The service was authorized by the Fifty-Fourth General Assembly with an appropriation of \$35,000 to be used for maintenance, transportation, appliances, and medical and surgical care for the two-year period 1927 and 1928. The Eugene Field Foundation for the Relief of Crippled Children provided funds to continue the work when the appropriation was exhausted in 1928. The Fifty-Fifth General Assembly appropriated \$57,500 to conduct the service during the years 1929 and 1930 which was admittedly an insufficient amount. Again the Eugene Field Foundation provided additional money which was supplemented by funds from civic organizations and individual donors thus making it possible to continue the work without curtailment of facilities. In the last legislature a bill was passed creating a state commission for crippled and physically handicapped children and providing for clinics and hospitalization, but it was vetoed by Governor Caulfield because of conflict with the existing statute governing the care of crippled children and duplication of the service already established by the medical school. The last General Assembly made the most generous appropriation that has been given the service since its establishment, that of \$100,000 to carry on the work during the years 1931 and 1932.

The report of the service for the period ending December 31, 1931, shows 363 admissions to the hospitals with a total of 18,277 hospital days furnished and 385 outpatients served. There were twenty-nine clinics held at various places in the state at which 725 children were examined.

In the two and a half years of the service sixty-seven counties had been served, sixty-three of them having placed children in the university hospitals and four having had children cared for only in the outpatient department. At the twenty-nine clinics sixty counties were represented. There were ten counties on the waiting list for service to children at the time the report was made.

In a foreword to the report which was recently published President Walter Williams of the State University writes: "The record of the work done by the State Service for Crippled Children is an appealing one. It demonstrates the importance and need for such work. He who adds to the abundance of human living by removing handicaps which interfere with the child's chances in life is a benefactor to the entire commonwealth."

Dr. G. Kenneth Coonse is chief surgeon and Dr. R. S. Battersby is pediatrician.



## ST. LOUIS ESTABLISHES NEW HEALTH RECORD

St. Louis achieved what was characterized by Dr. Max C. Starkloff, city health commissioner, as "a truly remarkable result in the year's health record which surpasses as a whole any previous year in the city's history." This is especially noteworthy in view of the combination of unfavorable conditions of business depression, drouth, intense heat and cyclic recurrences of epidemics of measles. The health commissioner's annual report, recently completed, covers the fiscal year ending March 31.

St. Louis has for years led other cities in low infant mortality and lowered its own record from 58 per 1,000 to 52.9 in the last fiscal year. This is the smallest number of infant deaths ever reported in St. Louis and approaches the goal of 50 for large cities. The rate was 76 in 1920 and less than half a century ago one out of every four babies died in the first year of life. The ratio now is one of every nineteen. In comparison to St. Louis' rate of 52.9, the rates of other large cities are: New York, 57; Chicago, 53.4; Philadelphia, 63.9; Cleveland, 54.5, and Detroit, 64.9.

The total of deaths in St. Louis was 10,334 or a rate of 12.5 per 1,000. The rate for the year ending March 31, 1930, was 12.8.

Decreased mortality was reported in epidemic meningitis, diphtheria, whooping cough, influenza, infantile paralysis and tuberculosis, but measles, typhoid and scarlet fever showed an increase. Heart disease continued to lead the causes of death, more than one quarter of the total number of deaths being due to this cause. However, last year deaths from heart disease numbering 2,560 were 425 fewer than the year before. In 1917 the death rate of heart disease was 159 per 100,000 of population; in 1928 the rate reached 354 and last year the rate dropped to 312. Dr. Starkloff believes the tendency to attain greater age than formerly is one reason for the increase in deaths from this cause.

Cancer was second in number of deaths, there being 1,192 last year and 1,141 the preceding year. A death rate of 5.1 per 100,000 for diphtheria was a record low mark. Deaths from tuberculosis decreased 12 per cent.

While there is some apprehension expressed in the report concerning the health of the city in the current fiscal year because the effects of economic depression are not immediately reflected in vital statistics, still the decreased death rate from preventable diseases and the low infant mortality rate are regarded as a reliable index to community health conditions.

## CORRECTION

In the report of the Defense Committee on page 337 of the July issue the following statement occurred: "We had a very sensational case in St. Louis in which \$100,000 was involved, which was plainly a case of malpractice." This should have read "which was plainly not a case of malpractice."

## NEWS NOTES

Dr. Clifton Smith, Jefferson Barracks, was appointed assistant resident physician of State Hospital No. 2, St. Joseph, July 2.

At the annual meeting of the American Laryngological, Rhinological and Otological Society held in St. Louis in June, Dr. Alvin J. Lorie, Kansas City, was elected vice president of the midwestern section.

Under the caption "Diseased Buildings" the National Committee for Mental Hygiene in a recent bulletin protests against a few medical misnomers and inaccuracies in the terminology applied to buildings and institutions. "Tubercular building," "psychopathic hospital," "disturbed and epileptic buildings," "nervous hospital" and "mental institution" are among the examples given. The bulletin concludes: "Even the purist is stumped at 'mental institution' the phrase has come into such general use. The technologists have given us the televox, the electric man and the robot, but it takes a psychiatrist to endow a hospital for the insane with a mind."

The sixteenth annual session of the American College of Physicians will be held in San Francisco April 4 to 8, 1932. Dr. S. Marx White, Minneapolis, is president of the college and will arrange the program of general sessions. Clinics will be in charge of Dr. William J. Kerr, San Francisco, professor of medicine at the University of California Medical School. Following the session at San Francisco a three-day program, principally of entertainment, will be given at Los Angeles. Mr. E. R. Loveland, executive secretary, 133 South 36th Street, Philadelphia, Pennsylvania, is in charge of general and business arrangements and may be addressed concerning any feature of the session.

Dr. Florian Harms, Moberly, junior house physician at the Wabash Hospital, has resigned to enter private practice in Salisbury. Dr. Harms will be succeeded at the hospital by Dr. Glen I. Allen, of Staunton, Illinois.

Bids for construction work on the new Federal hospital in Springfield will be received in September. Plans for the eight units of the hospital are being prepared by the architects.

Dr. E. H. Skinner, Kansas City, was elected first vice president of the American Radium Society at its annual meeting held in Philadelphia, June 8 and 9. He served as second vice president and chairman of the publication committee last year.

Dr. Oliver C. Sheley, Independence, celebrated his seventy-sixth birthday anniversary June 23 with a reunion at his home. He has practiced medicine in Independence since 1890. Dr. Sheley was born on a farm two miles southwest of Independence and was graduated in 1876 from the Kansas City Medical College. After fourteen years of practice in Kansas City he moved to Independence. Dr. and Mrs. Sheley were married fifty-three years ago and their five children attended the birthday celebration. One of the sons, Dr. N. Warren Sheley, is a physician in Los Angeles. Dr. Sheley was elected an Honor Member of the Jackson County Medical Society in 1920.

Dr. William Gerry Morgan, Washington, D. C., retiring president of the American Medical Association, accepted an appointment as a member of the Board of Regents of Georgetown University June 24. Dr. Morgan has taught gastro-enterology in the university's school of medicine for twenty-seven years and has been full professor since 1911. Dr. Morgan's elevation to the Board of Regents was in recognition not only of his long and faithful service to Georgetown University but also as a tribute to the eminence he has attained in his profession, Rev. W. Coleman Nevils, president of the institution, said in making the announcement. Dr. Morgan will continue his present duties with the medical faculty.

On the occasion of assuming the presidency of the American Medical Association, the honorary degree of doctor of laws was conferred on Dr. Morgan by Georgetown University.

Among Dr. Morgan's medical activities have been the presidencies of the American Congress on Internal Medicine, the American Gastro-Enterological Association, the Clinico-Pathological Society and the Medical Society of the District of Columbia. He is a Fellow of the American College of Physicians, the American Therapeutic Society, the Southern Medical Association, the Medical Society of Virginia, the Association of Military Surgeons of the United States, the Washington Academy of Medicine and the Medical Veterans of the World War.

The new Menorah Hospital, Fiftieth and Troost, Kansas City, will be ready for occupancy about August 1. The institution was erected by the Jewish Memorial Hospital Association but will be nonsectarian. It was constructed at a cost of \$1,400,000 and will be well equipped throughout. Dr. Alvin Lorie was elected president of the staff and other officers are: Vice president, Dr. Abraham Sophian; treasurer, Dr. Elmer Twyman; secretary, Dr. Albert Lemoine.

The Kansas City Southwest Clinical Society will hold its ninth annual fall clinical conference in Kansas City, October 5 to 9. The daily schedule will include hospital clinics and post-graduate courses in the mornings, round-table luncheons with addresses by distinguished guests, and clinical lectures by eminent physicians in the afternoons. An open meeting will be held on the first evening of the conference followed on consecutive evenings by the Jackson County Medical Society Semicentennial Jubilee, an alumni buffet supper, a scientific program provided by guests, and a banquet of the southwestern branch of the American Urological Association.

Among the guests will be Dr. E. Starr Judd, Rochester, president of the American Medical Association; Dr. Joseph Colt Bloodgood, Baltimore, clinical professor of surgery in Johns Hopkins University School of Medicine; Dr. Frank H. Lahey, Boston, founder of the Lahey Clinics of Boston; Dr. M. N. Smith-Petersen, Boston, assistant professor of orthopedic surgery in the Harvard University Medical School; Dr. Robert A. Cooke, New York, assistant professor of applied immunology, Cornell University Medical College; Dr. Arthur J. Bedell, Albany, who has developed a system of photographing the interior of the eye; Dr. Wells P. Eagleton, Newark, who has contributed numerous writings on brain complications following ear suppuration; Dr. Louis J. Hirschman, Detroit, professor of proctology, Detroit College of Medicine and Surgery; Dr. Verne C. Hunt, Los Angeles, who will be the guest speaker of the southwestern branch of the American Urological Association; Dr. Irving McQuarrie, Minneapolis, professor of pediatrics, University of Minnesota Medical School; Dr. Harold N. Cole, Cleveland, associate clinical professor of dermatology and syphilology at the Western Reserve University School of Medicine; Dr. Alton Ochsner, New Orleans, professor of surgery, Tulane University of Louisiana School of Medicine, and Dr. Alexander B. Moore, Washington, D. C., professor of roentgenology, Georgetown University School of Medicine.



Dr. Lawrence T. Post, St. Louis, became editor of the *American Journal of Ophthalmology* with the July issue. He succeeds Dr. William H. Crisp of Denver.

Persons who worry about doctors' bills or who never find it possible to save up for sickness would find soviet Russia a medical Utopia, according to Dr. E. A. Burkhardt, Kansas City, who returned recently from a month's study of conditions in Russia. Dr. Burkhardt accompanied though not as a member a labor delegation sent abroad by the Friends of Soviet Russia, an American organization. Dr. Burkhardt centered his interest on medical conditions and Mrs. Burkhardt who accompanied him devoted her time to studying welfare activities.

Dr. Burkhardt pointed out that Russia has made medical and hospital care free to everyone. Every workman, and in Russia in accordance with the soviet régime every one is a worker, is required to have a complete physical examination twice a year. If a worker becomes ill he is cared for at a government hospital. Each factory unit has a medical center, the "unicus," where any worker in that factory is given medical attention. Women workers are given two months' vacation on full salary both before and after the birth of children. The government maintains rest homes to which workers who have become tired or who may be in danger of a breakdown are sent and rehabilitated. Night rest homes are maintained to which workers may go for the night and receive careful nursing and other attention that will safeguard their health. The chief emphasis in medical practice in Russia, Dr. Burkhardt says, is in the prevention of disease.

There are still a few private medical practitioners in Russia, according to Dr. Burkhardt, but they are rapidly passing because of the competition of the state physicians and hospitals. The government has organized the medical profession into a trade union just as other professions and occupations have been organized in that country. Doctors' salaries under the soviet plan range from \$65 to \$400 a month depending on the standing of the physician in the profession and as a rule are increased as efficiency and skill increase.

Dr. Burkhardt believes that Russia will lead the world in medical research as a result of the encouragement the government is giving such activity. The government is furnishing institutes for the study of various diseases and the physician working in them is given every possible facility for research. He points out that medical development in Russia is along the line of large clinics which enable the physicians to get mass experience.

In a crusade to eradicate cholera from Shanghai, China, an American physician, Dr. W. W. Peter, was designated by the Nanking government to coordinate the efforts of the International Settlement, the French Concession and the City of Shanghai, which make up Greater Shanghai. A spectacular anticholera educational parade emphasizing the mortality of cholera and the importance of cleanliness and health protection as preventive measures was a principal feature of the program.

The medical staff of the Welfare Board of St. Joseph, Missouri, cared for 603 hospital patients during the last fiscal year ending in April. This was 116 more than were served in the previous year. Dr. Daniel Morton who was the motivating force in organizing the board in 1913 and served as its first president then as chairman of the medical service committee for nine years was reappointed to the chairmanship June 1. He succeeded Dr. Harry S. Conrad who had headed the committee for the last six years. The medical staff of the board is composed of thirty St. Joseph physicians some of whom have served since the board was organized eighteen years ago. The staff is divided into groups each serving for a period of three months. These physicians work only in the hospitals, the board employing a physician to care for the indigent ill in the home.

The St. Louis County Hospital, North and South Road west of Davis Place, was dedicated July 18 and began operation July 20.

The hospital has a capacity of 150 beds and 48 bassinets of which 50 beds and 24 bassinets are for Negroes. Service departments, however, were constructed on a scale to care for an eventual addition of another 150 beds. The hospital is a four-story brick structure with a nurses' home, service building and superintendent's residence on a twenty-eight acre tract. Tuberculous, contagious, mental, chronic and infirmity cases will continue to be handled by other institutions.

Dr. Eugene A. Scharff, former superintendent of the St. Louis City Hospital, is head of the staff and superintendent. The hospital will have a staff of ninety physicians including some of the most prominent physicians and surgeons in St. Louis.

Among the speakers at the dedication exercises were Governor Caulfield; Dr. James Stewart, Jefferson City; Dr. P. M. Brossard, Maplewood, vice president of the St. Louis County Medical Society; Dr. Curtis H. Lohr, St. Louis, hospital commissioner of St. Louis, and Dr. Eugene A. Scharff.

Plans have been approved by the War Department to equip 105 army hospitals with radio equipment for the patients. From a central receiving set installed in each hospital wires will be run to the bedsides of the patients who will be provided with individual head sets, or "radio pillows." The department expects the service to be completed in 1935.

Dr. Brij Mohan Sharma, professor of anatomy and surgery at Tibbi Medical College, Delhi, India, who has been observing methods of medical teaching at Washington University School of Medicine, sailed for Europe July 10. Dr. Sharma spent twenty-one months in St. Louis working under the auspices of the Institute for Current World Affairs. He will study European methods of teaching, organization and research for a year after which he will return to Delhi where among other things he intends to establish a children's department at the medical school with clinics and methods patterned after the system in vogue at the Children's Hospital in St. Louis.

More effective treatment of cancer and other diseases will probably follow the hoped-for adoption of an international unit of measurement for radium and roentgen ray by the International Congress on Radiology which met in Paris July 26 to 31. Standardization of such a unit of measurement was one of the principal problems to come before the meeting. At present it is not always possible to give exactly the dosage of roentgen rays or radium prescribed by European physicians for a given condition. This has hampered research and also medical practice somewhat. If an international unit is adopted, a physician in one country can give a treatment with the exact amount of roentgen rays prescribed by a physician in another country just as he now can give exactly the same dose of castor oil or quinine which can be measured by already standardized international units.

Dr. Lauriston Taylor, Washington, D. C., physicist of the department of roentgen ray measurements of the United States Bureau of Standards, attended the congress with his "portable roentgen ray yardstick." This instrument provides a standard unit for accurately comparing the intensity of roentgen rays from different roentgen ray tubes. Dr. Taylor's standard of measurement had already been adopted by the United States and was to be considered by the congress.

Dr. Edwin C. Ernst, St. Louis, who represents the Radiological Society of North America, and Dr. Taylor were the United States

members of the committee which was to consider this matter of standardization. The conclusion of this committee was almost certain to be adopted by the congress.

Other delegates from the United States to the congress were: Dr. Albert Soiland, Los Angeles, representing the American Medical Association; Dr. Benjamin Orndoff, Chicago, representing the American College of Radiology; Dr. George Grier, Pittsburgh, representing the American Radium Society; and Dr. George E. Pfahler, Philadelphia, representing the American Roentgen Ray Society. Alternates were Dr. Sherwood Moore, St. Louis; Dr. William E. Chamberlain, Philadelphia; Dr. A. U. DesJardins, Rochester, Minnesota, and Dr. Thomas A. Groover, Washington, D. C.

Mme. Marie Curie, co-discoverer of radium, was honorary president of the congress and was presented with the gold medal of the American College of Radiology.

Medical service in the United States each year costs about \$3,106,000,000 according to estimates by the research staff of the Committee on Costs of Medical Care. The committee, under the chairmanship of the Secretary of the Interior, Dr. Ray Lyman Wilbur, comprises a large group of physicians, public health officials and other experts, economists, representatives of institutions and social agencies. The estimates are based on committee studies directed to the problem of adequate scientific medical service to all people at a cost which they can reasonably meet.

A third of the money spent goes to the physician according to the estimate. Other expenditures estimated are: Medicine and supplies, \$700,000,000; hospitals, \$550,000,000; dentists, \$400,000,000; nurses (other than hospital) \$112,000,000; public health, \$86,000,000; optometrists and opticians, \$50,000,000; chiropractors and naturopaths, \$3,000,000; osteopaths, \$20,000,000; midwives, \$15,000,000; chiropodists, \$15,000,000, and nonhospital dispensaries, \$5,000,000. Families afflicted by illness pay \$123,000,000 annually for necessary extra household help.

The surveys thus far show wide divergencies in medical expenditures in proportion to income; families with incomes below \$1,200 spend about \$66 a year on medical service, those with less than \$2,000 spend \$71.48 whereas families with more than \$5,000 a year average \$311 and those above \$10,000 about \$520.

The committee has found from available data that the average adult man loses seven or eight days a year from illness and the average woman eight to twelve days.



The tenth annual session of the American Congress on Physical Therapy will convene in Omaha, Nebraska, October 5, 6, 7 and 8 with headquarters at the Fontenelle Hotel. For the first time the congress has incorporated clinical work in the program and the morning sessions will be devoted to clinics and clinical demonstrations. This additional feature was made possible through the cooperation of the University of Nebraska College of Medicine and the Creighton University School of Medicine, both at Omaha. The work in the clinics will deal with tonsils, fractures, pneumonia, pediatrics, gastro-enterology, dermatology, massage, therapeutic exercise and hydrotherapy.

A wide range of subjects will be presented in papers delivered at the scientific sessions which will be held in the afternoons of the meeting.

While the sessions start on Monday morning, October 5, the formal opening of the convention will be in the evening of that day when the Lieutenant Governor of the State of Nebraska and the mayor of Omaha will address the assemblage. Other speakers of prominence will participate and the evening's program will conclude with a smoker, fellowship gathering and entertainment.

On the second evening the Omaha-Douglas County Medical Society will convene with the congress. Among organizations cooperating in the meeting are the Omaha Roentgen Ray Society, the Nebraska division of the American Society for the Control of Cancer, the two medical schools and the Omaha-Douglas County Medical Society. Further information may be obtained from the headquarters of the congress 30 North Michigan Avenue, Chicago.

The following articles have been accepted for New and Nonofficial Remedies:

Carel Laboratories

Alpha-Naphco Camphor Nasal Unguent

Alpha-Naphco Cones

Alpha-Naphco Menthol Suppositories

Alpha-Naphco Rectal Suppositories

Alpha-Naphco Zinc Stearate Camphor Ointment

Alpha-Naphco Zinc Stearate Powder

Alpha-Naphthol Camphor Oil

Lederle Laboratories, Inc.

Liver Extract—Lederle

## OBITUARY

ARISTA T. HAYMAN, M.D.

Dr. Arista T. Hayman, St. Louis, a graduate of Barnes Medical College, St. Louis, 1903, died July 8 of an acute heart attack while enroute to his office. He was 57 years old on that day. He had apparently been in good

health except for a slight illness a week preceding his death.

Dr. Hayman was born at Monticello, Missouri. After receiving his preliminary education in the public schools he studied at the Keokuk Medical College, Keokuk, Iowa, and completed his medical studies at Barnes Medical College.

He is survived by his widow, Mrs. Carrie Hayman, and two daughters, Mrs. Grayson Carroll and Mrs. James Byrne, all of St. Louis.

GEORGE MORGAN MOORE, M.D.

Dr. George M. Moore, Eldon, a graduate of the University of Louisville School of Medicine, 1892, died June 28 at his home after an illness of several months, aged 69 years.

Dr. Moore was born in Lebanon, Kentucky, and received his preliminary and medical education in that state. He moved to Linn Creek, Missouri, in 1892 upon the completion of his studies of medicine and practiced there until December, 1930, when he moved to Eldon.

In his thirty-nine years in Missouri Dr. Moore experienced the change in the practice of medicine from answering calls on horseback with the equipment one could carry in a saddle pocket the only means of administering to his patients to the present improved methods of transportation and medical care. Dr. Moore, however, always maintained the acute interest in his patients that was typical of the rural physician. He was highly esteemed and loved by all who knew him and his death is a severe loss to friends, the community and the medical profession.

Dr. Moore allied with organized medicine early in his career. He was president of the Camden County Medical Society from 1920 until he moved to Eldon and was delegate to the State Medical Association in 1920, 1924, 1927 and 1930.

Mr. Moore is survived by his widow, two daughters and two sons.

ST. ELMO SANDERS, M.D.

1873-1931

AN APPRECIATION

Dr. St. Elmo Sanders was born in Owensburg, Indiana, April 2, 1873, and died at his home, 520 Spruce Street, in Kansas City, Missouri, June 1, 1931.

While he was a boy his parents, who had been pioneers in Indiana, moved to central Missouri and in 1891 to Kansas City. In 1893 he was graduated from the Central High School. He entered the University Medical College, Kansas City, and was graduated in 1900. Two

years later, in 1902, he and Miss Edith J. Rowley were married.

Dr. Sanders practiced in Kansas City for thirty-one years and his high skill in surgery was acknowledged by the medical profession. A large part of his work in later years was in consultation with physicians and surgeons who came to him for advice in their major problems.

Dr. Sanders was professor of anatomy in the University Medical College from 1904 to 1909, and was professor of surgery in the same college from 1909 to 1913. He was professor of surgery in the Postgraduate Medical School in Kansas City for two years, 1909-1911. He was city physician of Kansas City from 1905-1909. The General Hospital was built during his administration as city physician and he had much to do with the building of it. He helped select the site and took a keen general interest in and oversight of the whole project. He was active in bringing into existence the present Leeds Tuberculosis Sanitarium and helped select the site for it.

Dr. Sanders was a member of the Central Baptist Church and always felt that the Baptists should have a hospital in Kansas City and he established the Baptist Hospital near Sheffield and was its president five years, 1912-1916. Later he was instrumental in building Grace Hospital at Ninth and Harrison Streets and was its president for a time. When it became the hospital of the Evangelical Church in Kansas City, three years ago, and its name was changed to Evangelical Hospital, Dr. Sanders became its surgeon-in-chief and remained in that position until his death.

Dr. Sanders took an active part in the doings of the Jackson County Medical Society and was a member of the Missouri State and the American Medical Associations, of the Southern Medical Association and the Red Cross. He was a Mason and a member of the Shrine and the Scottish Rite.

He was a Christian gentleman and a man of sterling character and worth. He was especially cordial to young doctors and many of them were his friends.

When the General Hospital was designed, Dr. Sanders selected the following inscription, which is yet above its main entrance:

The quality of mercy is not strained;  
It droppeth as the gentle rain from heaven  
Upon the place beneath; it is twice blessed;  
It blesseth him that gives, and him that takes.

This quotation from Shakespeare is symbolic of his own nature, for sympathy and charity for others were the outstanding characteristics of his whole life.—P. N. J., in the *Weekly Bulletin of the Jackson County Medical Society*, June 27.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

Lafayette County Medical Society, May 23, 1931.

Putnam County Medical Society, July 7, 1931.

### THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of February 20, 1931

PHYSIOLOGY OF THE STOMACH.—By  
DR. A. C. IVY, Chicago.

The major functions of the stomach are of a motor and secretory nature. The stomach serves as a reservoir, for trituration of food, secretes juices for digestion of proteins and for dilution, for sterilization and attenuation of bacteria, separates from meats a substance essential for erythropoiesis, is the primary source of hunger and absorbs a few liquids and crystalloids.

The motor activity of the stomach is associated with that of the esophagus. The cardiac sphincter delays the entrance of food into the stomach and prevents regurgitation. A normal tonus is maintained through the vagus and splanchnic nerves. They are not strictly antagonistic, the effect of stimulation of either depending upon the physiological state of the sphincter at the time. Cardiac activity may be induced by both nerves as well as by stimulation of any nerve in the body. Therefore cardiospasm is not due to vagotonia but probably to lack of coordination in the normal reflex. Cardiac sphincter hypertonicity is induced by gastric distension, peristalsis, or acidity, and probably the air cap helps to maintain tone. In volitional belching the gas swallowed leads to relaxation of the sphincter with contraction of the pylorus and even of the duodenum.

Four essential points in stomach movements are, that the antrum is most active in trituration the fundus serving as a hopper and increasing in activity



as digestion proceeds; the antrum contracts to eject chyme; the pyloric sphincter relaxes for its passage, and a relative orderliness is preserved throughout.

Factors involved in the emptying of the stomach are, pyloric tone, motility of the stomach, consistency of the contents, and character of the food. With a hypertonic sphincter normal emptying time may be accounted for by a hypertonic stomach. Fats leave more slowly than the other two food groups, unless well mixed with the other foods, because of a specific inhibitory effect on tone probably due to hormone activity.

The acidity control theory is now untenable because ligation of the pancreatic ducts instead of causing slower emptying time increases it. Hunger and appetite control the emptying time.

Chyme in the duodenum delays the emptying time. The temperature plays no great role except that hot foods eventually lead to achylia, gastritis and acute ulceration. The emptying time is shortened by moderate exercise, ingestion of water and resting with the right side down.

Gastric pain is mediated by the sympathetic nerves while the vagi are responsible for nausea. Hunger is due to a humoral mechanism with periodic stomach contractions in which movements of the esophagus and duodenum play a part. Hunger may be experienced after gastrectomy. The duodenum is the most sensitive part of the gastro-intestinal tract and is commonly involved in the production of nausea, vomiting and headache.

Digestive juice is secreted by the fundal mucosa while the antrum secretes only mucus. Mucus among other things helps to prevent autodigestion; one gram of mucin will neutralize the acid in 10 c.c. of gastric juice. There are three phases in gastric secretion, the cephalic, the gastric, due to distention and to secretagogues produced by the action of gastric juice on food, and the intestinal, due to the action of products of digestion on the intestine.

After total gastrectomy, unlike partial gastrectomy, there is no compensatory dilation and achylia is complete and permanent. The animal eats slowly over a long period of time, needs twice as much to eat, and will develop anemia, especially with pregnancy, unless given cod liver oil and hypodermics of iron, vomits with difficulty, develops pyorrhea and is subject to enteritis.

After gastro-enterostomy there may be no acid for several months because of regurgitation of alkaline bile and pancreatic juice, faster emptying of the stomach, and because intestinal distention inhibits gastric secretion.

#### DISCUSSION

DR. O. O. STOLAND, Lawrence, Kans.: Theories such as that of Cannon have crept into the literature and confuse the student when others are taught in class. Dr. Ivy has helped to clarify many of the old ideas.

DR. R. M. ISENBERGER, Kansas City: Dr. Ivy exemplifies the true meaning of experimentation in medicine which is not mechanical but represents a mental process.

Since high temperatures have been shown to inhibit gastric motility it seems probable that fever may have a similar effect. Would it be possible to restore the normal gradient in cases of nausea by the irritation produced with calomel?

DR. ELLIS W. WILHELMY, Kansas City: I believe one of the factors that led Dr. Castle into his work was the reports of secondary anemia following gastro-enterostomy and of pernicious anemia following total gastrectomy. Dr. Ivy reporting his work with

dogs mentioned only secondary anemia and I wondered if there had been any blood pictures of the Addisonian type.

Webster, at McGill, does not feel that there are any cells in the stomach capable of secreting a substance active in the neutralization of hydrochloric acid at the end of the digestive period. Does Dr. Ivy feel that gastric mucin plays as important a role in this respect as does the regurgitation of alkaline duodenal contents?

DR. DELON A. WILLIAMS, Kansas City: What is your opinion of Dr. Crile's idea that thyroid and adrenal activity are related to gastric ulcer?

DR. GEORGE KNAPPENBERGER, Kansas City: Since you state that almost any degree of acidity may be found normally, of what value is gastric analysis from a diagnostic and therapeutic point of view? Since fats inhibit secretion of hydrochloric acid in the stomach but increase it in the intestine, would you recommend it for treatment of peptic ulcer?

DR. IVY, in closing: Concerning Dr. Crile's theory, it is known that anxiety is one of the factors preventing healing of peptic ulcer. In regard to gastric analysis, I do not believe that the fractional method is diagnostic of any condition. I would advise fat in the treatment of ulcer knowing that hyperacidity may occur later and require aspiration.

With ligation of the common bile duct we were able to induce ulcers in 10 per cent of our animals; with continuous drainage of bile to the outside gastric and duodenal ulcers developed consistently.

While achylia presents an hereditary factor I believe the anemia developed in our animals after gastrectomy was due to nutritional disturbances. The factor of safety of digestion was reduced to a minimum level and therefore pregnancy brought on the anemia.

#### Meeting of March 20, 1931

#### COMPARATIVE RESULTS WITH RADIUM ROENTGEN RAY AND SURGERY IN THE TREATMENT OF CANCER.\*—By DR. ELLIS FISCHER, St. Louis.

There are few specific therapeutic measures in medicine and some of these are not thoroughly effective. Yet, because patients under treatment die with fulminating malaria that is not sufficient grounds to discard quinine; nor because they die with advanced myocarditis is that a good reason to dispense with digitalis. Measures used in combating cancer are in the same category.

In our work with cancer since 1905 the experimental surgical field has been well covered. Roentgen ray has been used experimentally to some extent and radium experimentally to a limited degree. The effect of colloidal lead, copper sulphate, acetone and other measures have been tried and discarded. The basis for our statistics is a five-year "cure" because we found that many patients die in the third and fourth years after treatment was instituted. In our experience we have no record of the known cure of cancer of the stomach. There has been cure of lip cancer in 59 per cent of all cases, cure of breast cancer in 18 per cent and cure of cervix cancer, none up to 1915 and 9.2 per cent from 1915 to 1925.

For cancer of the lip we use as routine treatment extensive surface application of radium together with bilateral cervical gland resection including the submaxillary and submental groups. Statistics show

\* From the Barnard Free Skin and Cancer Hospital, St. Louis.

a five-year cure in this group of 90 per cent. In suitable cases resection of the lesion is performed at a distance of at least one centimeter from the cancer border. The Stewart operation in which the lesion, glands and draining lymphatics are removed at one stage, is used for selected and recurrent cases.

Cancer at the tip of the tongue is excised followed by gland resection; at the margin it is treated with radon in gold seeds and gland resection is performed. If response to radon is not satisfactory radical resection of the tongue is done. The block gland resection includes the deep jugular vein and sternocleidomastoid muscle.

Cancer of the eyelid seems to respond best to radiation and the cornea and sclera are seldom damaged. Most of these cases display low grade malignancy but the resistance of individual tumors to radiation is an unknown quantity regardless of biopsy classification, and at times exenteration of the orbit must be performed especially with conjunctival involvement and globe fixation. Good healing follows exenteration of the globe if the bony wall has not been perforated.

Concerning cancer of the skin, the method of treatment seems to make little difference so long as it is thorough and plenty of margin has been included. We prefer a single application of radium and biopsy is not done because routine gland resection is not recommended. Where cancer overlies cartilage, radium must be used more conservatively. Extensive rodent ulcers of the nose or ear are perhaps best excised by cautery and plastic reconstruction done at the same time. Growths starting on the alveolar process and buccal mucosa respond poorly to radiation. Surgical treatment is best.

Surgical treatment is best for cancer of the breast. Radiation before or after operation has not proved of value. For cancer of the penis radical removal with bilateral inguinal and femoral gland resection is indicated. Surgery seems best in cancer of the large bowel or rectum but radon seeds may be used in cancer of the bladder or prostate gland.

Radiation is not satisfactory for cancer of the larynx. Cancer of the cervical esophageal wall if suitably located may be removed and plastic reconstruction with an epithelial transplant performed. Cancer developing in burns is best removed surgically and plastic repair performed immediately.

I believe that radiation technic with radon implants is more difficult than surgical technic because the operator must work blind and must be most accurate in application.

#### DISCUSSION

DR. EARL C. PADGETT, Kansas City: Bland-Sutton remarked that "in controversy statistics become political arithmetic." To select the best treatment for cancer in individual cases requires a knowledge of pathology, radiology and surgery. From Broder's conception of grading Ewing conceived the idea of classifying epidermoid carcinomas as to degree of radiosensitivity. Tumors least radiosensitive show the highest percentage of surgical cures, those most sensitive the least percentage. Wood pointed out that different tumors of the same cellular morphology may vary in radiosensitivity.

In the aggregate, the percentage of "five-year cures" of cancer of the cervix from radium and surgery run about the same without the 17 per cent operative mortality when radium is used. If the treatment does not get beyond the farthest extension of the disease no hope for an ultimate cure can be logically entertained.

DR. E. H. SKINNER, Kansas City: Cooperation between pathologist, surgeon and radiologist has led to a better understanding of cancer therapy. I agree with Dr. Fischel that the single complete dose of radiation is best in the treatment of skin cancer. If cartilage or bone is directly beneath the lesion, as in the skin at the cheek bone, smaller repeated doses may be best. In the radiation treatment of lesions about the mandible involving the mucous membrane it is necessary to approach the lethal dose which may embarrass the periosteum and produce a sterile necrosis; but the sacrifice is warranted. While radium may not be the ultimate answer to many cancer problems it is still a dependable agent. The method of its application requires many adaptations, analytical research and clinical study. I am not inclined to believe that cancer will disappear from the human race because it is a disease of degeneration. We embarrass ourselves in seeking to cure when we should be attempting to manage the disease.

DR. H. R. WAHL, Kansas City: I have studied the relation of cancer tissue removed following unsuccessful radiation and was prejudiced at the time against the slipshod methods of application and the lack of knowledge of the tumor involved. The radiologists were handicapped because no biopsies were done. I believe that there should be histological records of every tumor dealt with. Study reveals great variation in type of cells even in the same tumor, hence specimens are often difficult to classify accurately. One block of tissue does not always represent the entire growth.

DR. ELMER D. TWYMAN, Kansas City: Cases that appear the worst may show the best results and the mild ones may be the most difficult. We should work hopefully with all cases.

DR. A. C. CLASEN, Kansas City: What do you think of the Fisher treatment with carbon dioxide and oxygen?

DR. FISCHEL, in closing: The Fisher plan of treatment may relieve pain but does not prolong life. Patients may also become pain free without treatment. Before statistics can be properly evaluated one must know every detail that went into their collection.

#### Meeting of April 24, 1931

#### PROBLEMS INVOLVED IN CORONARY DISEASE.\*—By DR. ARLIE R. BARNES, Rochester, Minnesota.

Animals low in the biologic scale possess a sinusoidal cardiac circulation. A coronary circulation to the cortical portion of the myocardium is present in reptiles. In the rabbit the coronary and Thebesian circulations have abundant connections. The coronary anastomosis is not developed equally well in all human beings. It is richer in persons of advanced age, hence those past seventy seldom die of coronary occlusion.

The pain of angina pectoris appears to be due to myocardial anoxemia and that of occlusion is certainly associated with ischemia. Coronary sclerosis is characterized by eccentric thickening of the intima and affects the large rather than the small vessels. The myocardium may appear normal, may present varying degrees of fibrosis, or there may be hypertrophy in association with hypertension. Syphilis is an important factor only when it produces atresia of the mouths of the coronary vessels. I believe acute infections play a minor part and focal infec-

\* From the Mayo Clinic, Rochester, Minn.



tion other than possibly causing the formation of thrombi in previously altered vessels does not appear to exert an important influence on the course of the disease. The pain of angina pectoris, at first induced by effort and relieved by rest, may eventually appear during rest. If pain induced by effort is situated behind the sternum a presumptive diagnosis of angina pectoris may be made but, if the pain is referred to the left lateral portion of the thoracic wall this diagnosis should not be made without the most conclusive evidence. Such pain may be simulated by myalgia, herpes zoster, intercostal neuralgia and neurasthenia. Without occlusion the pain is of brief duration. There may be no objective nor subjective evidence of heart disease.

Electrocardiographic changes are produced by three mechanisms: (1) Infarction, (2) atrioventricular dissociation due to interference with the blood supply to the bundle of His, and (3) bundle-branch block due to interference with the blood supply to the bundle-branches. A large Q wave is often found but its absence does not rule out coronary disease. The majority of patients with angina pectoris have no significant electrocardiographic abnormalities.

Coronary occlusion probably depends to some extent on anatomic differences in the distribution of the coronary vessels that supply the right and left ventricles. Infarction of the posterior basal portion of the left ventricle is practically as common as infarction of its anterior apical portion. Death may take place so quickly following coronary occlusion that there is insufficient time for the formation of infarcts. Myocardial rupture occasionally occurs in the first three weeks after infarction due to rapid myocardial necrosis rather than to cardiac aneurysm. Mural thrombi which frequently form beneath the site of the infarcts may be multiple. Pericarditis occurs in only 15 per cent of cases.

With acute occlusion the patient presents the picture of shock. Usually a history of antecedent pain and dyspnea is obtained and a marked drop in blood pressure is observed. Fever and polymorphonuclear leukocytosis develop on the second day. Fifty per cent or more of patients with coronary occlusion recover. When death occurs it results from embolism, myocardial rupture, congestive heart failure or subsequent coronary occlusion.

Characteristic electrocardiographic changes usually appear twenty-four hours after the time of occlusion. Careful study of the RS-T segments in leads I and III of the electrocardiogram permits a diagnosis of the situation of acute myocardial infarction. Having determined the situation of the infarct it is easy to determine the artery involved providing the region receives its normal blood supply.

When all other measures for relief of angina pectoris fail surgical treatment may be indicated. The method of choice is paravertebral injection of the upper five thoracic nerve roots. This does not modify the degree of coronary sclerosis, and deprives the patient of his signal of distress.

#### DISCUSSION

DR. P. T. BOHAN: Patients with coronary disease may be grouped as (1) those with effort pain, (2) the aged with congestive heart failure, (3) the aged with arrhythmias, and (4) those with coronary occlusion. Doctor Barnes' electrocardiographic studies have helped in the localization of heart lesions.

The essential lesion in the coronary arteries is atheroma. This is not comparable to alterations in the media that are characteristic of arteriosclerosis with which hypertension is associated. As to the

cause, I am inclined to believe that previously existing infection plays an important role. Of course, removal of foci does not remove anatomical changes that have already taken place.

DR. J. E. WELKER, Kansas City: I should like to emphasize the point that patients may die from coronary occlusion without pain. Such cases are difficult to diagnose without the electrocardiogram. I believe more in the hereditary than in the infectious element. I should like to ask Doctor Barnes if he feels that rheumatic heart disease in the young may be responsible for increased disease of the coronary vessels?

DR. R. H. MAJOR, Kansas City: Some maintain that the pain of angina pectoris is caused by disease of the aorta. Recently a man died suddenly just as he was entering the Bell Memorial Hospital and the intern found some nitroglycerine tablets in his pocket. At autopsy the patient was found to have had an unusually good aorta, like that of a child, but showed evidence of intense coronary disease. I think that a focal infection may be, at times, the precipitating cause of coronary occlusion.

DR. H. P. BOUGHNOU, Kansas City: How early are electrocardiographic changes to be expected following coronary occlusion? We had a patient that failed to show anything until the ninth day after his attack.

DR. A. M. GINSBERG, Kansas City: Glycosuria may appear with coronary occlusion. Three conditions are readily confused with it, namely, diabetic coma, pulmonary embolism, and pneumothorax.

DR. DAN G. STINE, Columbia: It may be a mistake to establish one etiological factor in coronary occlusion. Coronary disease is the heart's reaction to the stress and strain of living. I have seen cases in which allergy with angioneurotic edema seemed to precipitate the fatality. Again, some cases seem to be the direct result of bacterial invasion. I saw a number of deaths in young individuals from coronary occlusion following the influenza epidemic of 1918.

DR. R. M. ISENBERGER, Kansas City: What bearing may nicotine have upon sclerotic changes? These changes have been produced experimentally in animals. Would the use of heparin as an anticoagulant be warranted in thrombotic cases?

DR. H. R. WAHL, Kansas City: Of thirteen cases autopsied in our department last week five had disease of the coronary arteries. In a man who died with pneumonia both vessels were almost occluded. He must have gotten his myocardial blood supply by way of the Thebesian vessels. We have frequently found infarcts below the interventricular septum in the posterior wall of the heart, as described by Doctor Barnes, and one time we found an aneurysm in this region.

DR. F. C. HELWIG, Kansas City: In two cases of acute coronary thrombosis superimposed on an old atheroma, we recovered from suppurative lesions of the myocardium the same organism that was found in an apparent distant primary focus. It has not been proved that some of the so-called metabolic diseases are not due to focal infection. Extensive aortic atherosclerosis was reported produced in rabbits by repeated intravenous injections of organisms such as streptococci and bacillus coli in conjunction with a high protein diet.

DR. BARNES, in closing: Mann, Essex and I found that premature contractions were observed in dogs months after myocardial infarction had been produced by ligation of their coronary arteries. When either the right or left coronary artery of the dog was ligated characteristic RS-T changes comparable

to those observed following acute myocardial infarction in analogous regions of man were seen immediately after the ligation, and usually lasted for twenty-four hours. Multiple infarcts of the left ventricle are not uncommon in man, and one infarct may balance the other so that electrocardiographic tracings may lack the characteristic alterations.

Present-day conceptions are opposed to the idea that aortic disease is the cause of angina pectoris except in those cases in which the mouths of the coronary vessels are involved. Paroxysmal tachycardia, pernicious anemia, or hyperthyroidism in the absence of serious coronary disease may simulate angina pectoris. This pain is attributable most logically to a deficient oxygen supply to the cardiac muscle. Coronary occlusion arising from embolism is uncommon. Atheromas of the coronary vessels are often the seat of calcareous deposits or may undergo ulceration, and this in turn leads to reduction in the caliber of the vessels and slowing of circulation. This together with the fact that the tissue reactions in these atheromatous lesions act as foreign bodies appears to be the mechanism involved in the formation of thrombi.

#### CALDWELL COUNTY MEDICAL SOCIETY

The regular meeting of the Caldwell County Medical Society was held at Kingston, June 9. Drs. Charles G. Geiger and Willard Proud, of St. Joseph, and Donald M. Dowell, Chillicothe, were guests.

Dr. G. S. Dowell, Braymer, delegate to the State Association meeting at Joplin, gave a detailed report of the proceedings.

Dr. Geiger addressed the members on "Tuberculous Kidney and Its Surgical Care."

Dr. Proud read a paper on "Emergency Tracheotomy," and illustrated his subject with lantern slides.

Both subjects were fully discussed and the Society extended a vote of thanks to the speakers for their helpful and interesting talks.

E. A. THOMPSON, M.D., Secretary.

#### CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met June 11 at the home of Dr. and Mrs. M. P. Overholser, Harrisonville. Dinner was served at 6:30 p. m. by the Woman's Auxiliary.

Dr. H. A. Brierly, Peculiar, read a paper entitled "Angina Pectoris."

"Fractures of the Elbow," was the subject of a talk given by Dr. J. S. Triplett, Harrisonville.

Dr. A. H. Baldwin, Pleasant Hill, spoke on "Some Legislative Matters that Relate to the Profession."

Dr. B. O. Hartwell, Drexel, addressed the members on "Chorioepithelioma."

Each subject was thoroughly discussed.

A short business meeting was held. A military committee was appointed for the purpose of maintaining contact between the medical department of the Army and the members of the Society regarding Medical Department Reserve Corps matters. The committee consists of Drs. I. N. Parrish, Freeman; B. O. Hartwell, Drexel, and L. V. Murray, Pleasant Hill.

The Society voted to approve the movement for a county nurse.

The following members were present: Drs. M. P. Overholser, David S. Long and J. S. Triplett, of Harrisonville; L. V. Murray and A. H. Baldwin, of Pleasant Hill; B. O. Hartwell, Drexel; I. N. Parrish, Freeman; H. A. Brierly, Peculiar. Visitor: Dr. A. R. Elder, Harrisonville.

L. V. MURRAY, M.D., Secretary.

#### CLAY COUNTY MEDICAL SOCIETY

The June, 1931, meeting was held at the Odd Fellows Hospital in Liberty, on Thursday, the 25th. It was an all-day meeting, convening at 9:30 a. m. Dr. W. C. Hamilton, Kearney, president, was in the chair. The meeting was devoted to surgical clinics for the most part. The only important business transacted was the acceptance by the board of censors of the application for membership of Dr. E. L. Parker, Excelsior Springs.

The attendance at this meeting we believe surpassed that of any other assembly within our memory. Dinner was served by the girls of the institution—an old-fashioned country dinner with country ham and fried chicken, cream gravy and fine biscuits. The doctors love these little women who are just coming of high school age and a platterful of dollar bills constituted the "tip" and was delivered to them by Dr. C. H. Suddarth, Excelsior Springs, with a few fitting remarks. Forty-nine members, their wives and guests were seated at the table.

Busy after dinner? Well, observe this: A clinic demonstrating fifteen tonsillectomies, several submucous resections, a hernia operation under local anesthesia and some cataracts removed. It was surgical day. Four Kansas City specialists, Drs. F. B. Campbell, Raymond E. Teall, J. W. McKee, and Claude J. Hunt, contributed to one of the most instructive days in our history. Dr. Campbell's illustrated lecture on diseases of the rectum was specially good, and the cases were from his own practice.

The Society is indebted to the faithful work of Dr. F. H. Matthews, physician in charge of the hospital, for the splendidly arranged program, and to Mr. and Mrs. Rogers, superintendents of the home.

The Clay County Medical Society is thriving.

J. J. GAINES, M.D., Secretary.

#### FIVE-COUNTY MEDICAL GROUP

On Thursday evening, June 18, the Dunklin County Medical Society acted as host for the quarterly entertainment of the Five-County Group, the meeting being held in the basement of the Christian Church at Malden. An excellent luncheon was served by the ladies of the church. Fifty-two physicians registered for the banquet and some four or five came in late. The guests of the Group were Drs. A. H. Conrad, C. W. Lane and E. H. Rohlfing, of St. Louis.

The president of the Dunklin County Medical Society, Dr. W. L. Gossage, Kennett, being in Philadelphia at this time, the chair was filled by the vice president, Dr. Paul Baldwin, Kennett, who is possessed of unusual ability as an executive.

A short, humorous after-dinner talk was given by Dr. B. W. Hays, an enthusiastic visitor from Jackson, who entertained the members for some six minutes with his crisp and eloquent mannerisms; Dr. E. G. Cope, Lexington, a welcome visitor from Lafayette County, gave a short, spicy talk that created much laughter; Dr. W. J. Hux, Essex, in characteristic jocular vein, told a number of stories that added to the levity of the occasion, and Dr. G. T. Van Cleve, Malden, in practice for more than fifty-two years, carried the group back to the obscurity of preantiseptic days by telling about some of his humorous experiences in consultations some fifty years ago.

With the Group worked up to good humor, the president called for the scientific program. The three physicians sent to us by the Postgraduate Committee of the State Association were introduced and warmly applauded for we knew they would furnish a fine program.



Dr. A. H. Conrad, St. Louis, opened the program with a most excellent dissertation on "Early Syphilis."

Following this Dr. C. W. Lane, St. Louis, gave a splendid address on "Late Syphilis."

Dr. E. H. Rohlfing, St. Louis, concluded the program with an enlightening contribution on "Hereditary Syphilis."

At no time have we noted a more spellbound and interested audience. Unquestionably this was the most instructive meeting we have ever had. The numerous lantern slides exhibiting the various lesions of the disease in every part of the body were in themselves most educational. The Group appreciated the addresses of these specialists and the illustrations to back up the lectures.

The discussion for the most part consisted of numerous perplexing questions which in turn were well answered, and the speakers cleared up many phases of the disease that had been obscure to our practitioners.

The next meeting will be held Tuesday evening, September 22, at Essex, the Stoddard County Medical Society acting as host. The program is expected to be as instructive and interesting as any of our previous meetings since the speakers are men of high reputation and standing in their fields.

JOHN D. VAN CLEVE, M.D., Secretary.

#### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at Joplin, April 21, the president, Dr. L. C. Chenoweth, Joplin, presiding. There were eighteen members and seven visitors present. The Postgraduate Committee of the State Association furnished two speakers, Drs. Charles J. Eldridge and Paul A. Gempel, of Kansas City.

Dr. Charles J. Eldridge, Kansas City, presented a paper on "Intussusception in Children," in which he emphasized the extreme importance of early diagnosis and outlined medical treatment of barium enemas introduced under the fluoroscope which has proved successful in a fair percentage of cases.

Dr. Paul A. Gempel, Kansas City, gave a discussion of some practical considerations of the cause and treatment of sterility in which he outlined the régime of complete investigation of both the male and female.

Both talks were illustrated with lantern slides and roentgen ray films and elicited interesting discussions.

#### Meeting of May 26

The meeting was called to order by President Chenoweth with fifteen members and three visitors present. The guest of the Society was Dr. J. B. Stokes, of the State Tuberculosis Sanatorium, Mount Vernon.

Letters from the state president of the Woman's Auxiliary and from a doctor who was a visitor at the State Meeting in May expressing appreciation for courtesies shown, were read by the president.

The secretary read a letter from Dr. E. J. Goodwin, Secretary of the State Association, conveying official notice of a motion passed by the Association at the Joplin meeting expressing appreciation for the splendid cooperation of the Society in conducting the 1931 meeting.

The secretary asked for expressions regarding further meetings this spring. It was moved and seconded that no meetings be held until next fall. The motion was lost. It was moved and seconded that the customary social meeting be held, the time and place to be decided by a committee to be ap-

pointed by the chair. The motion carried. The president appointed Drs. A. B. Clark, Chairman, R. M. James and O. T. Blanke as the committee.

The secretary, as chairman of the local committee on arrangements for the Joplin meeting of the State Association, read his report.

Dr. R. M. James, Joplin, reported a case of cancer of the cervix in a patient who had disregarded advice and gone to Savannah, Missouri, for treatment. She returned to Joplin with a large slough and profuse hemorrhage. She was sent to the hospital but is so exsanguinated that prognosis is poor.

Dr. J. B. Stokes, Mount Vernon, read an instructive paper on "Diagnosis and Treatment of Pulmonary Tuberculosis."

O. T. BLANKE, M.D., Secretary.

#### LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society met at Lexington, May 27, in the Traders Bank Building, Dr. E. L. Johnston, Concordia, presiding. Members present: Drs. E. L. Johnston, Concordia; W. E. Martin and R. C. Schooley, Odessa; W. E. Koppenbrink, W. A. Braecklein, W. C. Webb and J. De Voine Guyot, of Higginsville; C. T. Ryland, J. Q. Cope, T. R. Butler, A. J. Chalkley and B. T. Payne, of Lexington; J. W. Horner, Alma.

Dr. T. R. Butler, Lexington, presented a paper on "The Removal of Round Bodies from the External Auditory Canal." He also made a talk on "The Doctor and His Investments."

Dr. J. Q. Cope, Lexington, reviewed the book "Microbe Hunters."

Dr. E. L. Johnston, Concordia, delegate to the Joplin meeting of the State Association, made an interesting report of that session.

J. DE VOINE GUYOT, M.D., Secretary.

#### MEDICAL SOCIETY OF ASSISTANT PHYSICIANS, MISSOURI ELEEMOSYNARY INSTITUTIONS

A meeting of the assistant physicians of the Missouri eleemosynary institutions was held at the State Tuberculosis Sanatorium, Mount Vernon, June 28.

##### Morning Session

The morning session consisted of the following demonstrative and operative clinics:

Artificial pneumothorax, by Dr. E. E. Glenn, Mount Vernon.

Artificial pneumothorax, by Dr. J. B. Stokes, Mount Vernon.

An operative clinic by Dr. E. E. Glenn, Mount Vernon, consisting of a phrenic exeresis on two consecutive cases for the purpose of collapsing unilateral tuberculous cavities. The various steps of the operation and the regional anatomy were explained and discussed in detail.

The session adjourned at noon.

##### Afternoon Session

The afternoon meeting was called to order by the president, Dr. T. R. Frazer, of State Hospital No. 1, Fulton, at 1:30 p. m. The minutes of the previous meeting were read and approved.

An address was given by Dr. E. E. Glenn, Mount Vernon, in which he gave a resumé of the advances made in medicine within the last thirty years, especially in the diagnosis and treatment of pulmonary tuberculosis and the treatment of paresis. He laid stress upon the value of current medical journals

and literature on general medicine in the libraries of the state institutions.

Dr. Ralph Hanks, of State Hospital No. 4, Farmington, responded with a few remarks.

Dr. Scott P. Child, Mount Vernon, moved that in order to resume the original routine of meeting places the next meeting be held at Nevada. The motion was seconded by Dr. G. W. Forman, St. Joseph, and unanimously carried.

A paper entitled "Tuberculosis: The Problem and Its Control" was read by Dr. Scott P. Child, Mount Vernon. Included in the problem of tuberculosis he presented evidence of its decreasing magnitude in the form of death rates in the United States from 1904 to 1929. The racial, social, industrial, and economic elements related to the disease were considered. In the control of tuberculosis in the various states consideration was given to the role played by the three factors, education, legislation and hospitalization, and medical care.

Dr. J. B. Stokes, Mount Vernon, read a paper on "The Diagnosis and Treatment of Pulmonary Tuberculosis." Within the confines of this paper were included the importance of early diagnosis. The basic principles with the assistance of which practically all tuberculosis cases can be diagnosed were given as follows: (1) History, family as well as personal; (2) physical findings; (3) laboratory findings; (4) roentgen ray findings; (5) tuberculin. Each one of these principles was dealt with concisely and in detail. The treatment of tuberculosis was considered under the following headings: (1) General routine; (2) symptomatic treatment; (3) treatment of complications, and (4) special treatment.

The papers were discussed by Dr. E. E. Glenn, Mount Vernon, who also showed and discussed some roentgen ray plates, demonstrating the different types of pulmonary tuberculous lesions as revealed by this method.

Dr. N. K. Pope, of the State School at Marshall, gave a talk on "The Clinical Types of Endocrine Dysfunctions in Mental Defectives." The subject was discussed by several members.

The meeting adjourned at 4:00 p. m.

The thoroughness with which the symposium on tuberculosis was presented and the wide knowledge and enthusiasm shown by Mount Vernon physicians rendered their program of extreme value. The address of Dr. Pope contained much important instruction on the care and education of the mental defective and offered valuable information.

Throughout the meeting the members were favored with the extreme courtesy of the superintendent, Dr. E. E. Glenn, the members of his staff and the hospital personnel.

#### NODAWAY COUNTY MEDICAL SOCIETY

The regular meeting of the Nodaway County Medical Society was held May 8 in the first-floor lecture room of the St. Francois Hospital, Maryville. The meeting was called to order by the president, Dr. K. C. Cummins, Maryville, at 7:45 p. m., with the following members present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. V. Martin, R. C. Person, and Jack Rowlett, of Maryville; R. B. Bridgeman and C. W. Kirk, of Hopkins; C. J. Garding, Conception Junction; W. M. Hindman, Burlington Junction; and Charles D. Humbert, Barnard. Drs. Jesse Miller, Maryville, and Joseph E. Welker and B. L. Myers, of Kansas City, and several Sisters from the hospital staff were the guests. Drs. Welker and Myers came through the courtesy of the Postgraduate Committee of the State

Association. The minutes of the regular meeting of April 10 and of the special meeting of April 22 were read and approved.

Letters from Dr. Arthur J. Cramp, director of the Bureau of Investigation of the American Medical Association, and Mr. Uel W. Lamkin, president of the Northwest Missouri State Teachers College, concerning the special meeting of April 22, were read by the secretary.

The secretary also read the editorial notice on page 227 of the May issue of THE JOURNAL.

The application of Dr. A. D. Barnett, Guilford, a former member of the Society, was read and approved and Dr. Barnett was elected a member.

Dr. Joseph E. Welker, Kansas City, gave an extemporaneous lecture on "Cardiac Edema; Its Diagnosis and Treatment," with especial attention to the treatment of fluid retention associated with arteriosclerotic heart disease. He carefully outlined the routine used in his private practice and gave his audience many valuable pointers on recent advances in diuretic therapy.

Dr. B. L. Myers, Kansas City, followed with a lecture on "Infections of the Hand." He illustrated his subject with lantern slides made from photographs and roentgen ray plates. He stressed his own methods of care in industrial surgery and emphasized the radical measures necessary in osteomyelitis of the phalanges. His essay was based largely on Kavenal's text.

Dr. Charles D. Humbert, Barnard, moved that the Society adjourn until September 11. Motion seconded by Dr. C. T. Bell and carried at 11:00 p. m. Most of the members then indulged in an informal lunch with Drs. Welker and Myers at the Grenada Cafe.

CHARLES D. HUMBERT, M.D., Secretary.

#### PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met in the assembly room of the Pike County Hospital, Louisiana, May 5. The president, Dr. E. M. Bartlett, Clarksville, called the meeting to order with the following members present: Drs. E. M. Bartlett, Clarksville; J. B. Biggs, Bowling Green; M. O. Biggs, J. W. Crewdson, T. G. Hetherlin, C. P. Lewellen and D. M. Pearson, of Louisiana. In the absence of the secretary, Dr. R. L. Andrae, Louisiana, the chair appointed Dr. C. P. Lewellen as acting secretary.

A letter was read by the acting secretary containing a resumé of the recommendations of the American College of Surgeons to the Pike County Hospital and staff resulting from the recent investigation of the hospital by Dr. Ponton, a representative of the hospital division of the American College of Surgeons. Four major recommendations were made as follows: (1) Filing with the College a copy of hospital staff rules and regulations and action against fee-splitting signed by the doctors. (2) Effort be made from time to time toward a thorough review and analysis of clinical work done in the hospital. (3) An endeavor be made toward improving the quality of clinical records, especially by the attending physicians. (4) Serious consideration be given to the control of surgery in order to prevent unnecessary and incompetent work. The clinical laboratory and roentgen ray department of the hospital was especially commended.

Through the courtesy of the Petrolagar Laboratories their representative, Mr. L. H. Cramblet, showed the following scientific motion pictures: (1) Movements of the Alimentary Tract in Experimental Animals; (2) Influence of Drugs on Gastro-



Intestinal Motility; (3) The Story of Cholecystokin. Its Action on the Gallbladder, and (4) Colles' Fracture, Its Mechanism and Treatment.

Light refreshments were served by Miss Hornback and some of the nursing staff.

CHAS. P. LEWELLEN, M.D., Acting Secretary.

### ST. FRANCOIS-IRON-MADISON COUNTY MEDICAL SOCIETY

The St. Francois-Iron-Madison County Medical Society met May 27 in the office of Dr. Dailey Appleberry, Rivermines, as guests of Drs. Dailey Appleberry and Homer Appleberry, of Rivermines and Flat River, respectively. About twenty members and several visitors were present. Mr. Peter Haines, division superintendent of the St. Joseph Lead Company at Rivermines, was one of the visitors and made a very interesting talk on the lead mining industry in Southeast Missouri.

Through the courtesy of the Postgraduate Committee of the State Association we were provided with a very instructive scientific program. Dr. Anthony B. Day, St. Louis, gave a talk on "The Medical Aspects of Prostatic Surgery," in which he emphasized particularly the importance of proper preparation for operation on patients who are to have prostatic surgery. He also enumerated a number of the secondary pathological findings in cases of prostatic hypertrophy.

Dr. D. K. Rose, St. Louis, spoke on "The Treatment of Prostatic Hypertrophy." He very clearly outlined the diseases of the urinary organs and the cardiovascular system, correlating these with the symptoms found. He emphasized the importance of preoperative care, briefly outlining the various types of operations and explaining the advantages and disadvantages of each.

These talks were very interesting and were freely discussed.

VAN W. TAYLOR, M.D., Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held May 20 at the home of Dr. W. F. O'Malley, Kirkwood.

The application of Dr. W. J. Dieckmann, Clayton, was read and approved and he was elected to membership.

Drs. W. W. Hanford and Francis J. Canepa, of St. Louis, were elected corresponding members.

A communication from Dr. Eugene A. Scharff, superintendent of the new St. Louis County Hospital, was read thanking the Society for its expression of good-will, and offering the hospital as a meeting place for the Society.

The scientific program consisted of a very good lecture on "Recent Developments in the Diagnosis and Treatment of Heart Disease," by Dr. O. P. J. Falk, St. Louis.

Resolutions were adopted approving the establishment at Kansas City of the last two years in medicine at the State University.

#### Meeting of June 10

The Society met at the home of Dr. W. F. O'Malley, Kirkwood, Wednesday, June 10, at 2:30 p. m.

The members enjoyed a paper on "Some Clinical Uses of Bacteriophage" by Dr. Hollis N. Allen, St. Louis.

The next meeting will be held in the new St. Louis County Hospital, the date to be announced.

FENTON J. PETERSEN, M.D., Secretary.

### ST. LOUIS MEDICAL SOCIETY

#### Meeting of the Council, March 11, 1931

The meeting was called to order at 8:15 p. m. by the president, Dr. Charles E. Hyndman.

The report of the membership committee was read by Dr. Leith H. Slocumb. The following applicants were voted upon collectively and all were elected to membership: Active, Joseph A. Hardy, Jr., Lister Building. Junior: Maurice A. Diehr, City Hospital; Henry Durst, 5226 Delor Street; Albert M. Estes, City Hospital; Raymond O. Muether, 1535 Papin Street; Roman J. Stranz, 4720A Virginia Avenue. Corresponding: Edward E. Kaplan, New York City; Joseph A. Scopelite, Madison, Ill.; Dora J. Silverman, Los Angeles; Robert Vinyard, Springfield.

A letter of resignation from Dr. Robert Vinyard, Springfield, as a delegate to the Missouri State Medical Association meeting on account of his removal from St. Louis, was read.

Dr. C. H. Shutt moved that the resignation be accepted and that the secretary be instructed to extend thanks to Dr. Vinyard for his untiring efforts in behalf of the Society and also the best wishes of the Council for success in his new location. Seconded by Dr. Harry M. Moore and carried.

The application of Dr. Gershom J. Thompson by transfer from the Olmsted County (Minnesota) Medical Society was read for the second time and he was elected to active membership.

The secretary presented a letter from the hospital commissioner relative to the proposed \$15,000,000 bond issue for eleemosynary institutions. On motion of Dr. H. Unterberg, seconded by Dr. H. S. Langsdorf, the letter was ordered published in the *Bulletin*.

Councilors present: Drs. H. H. Bell, C. E. Hyndman, A. R. Kieffer, W. C. G. Kirchner, H. S. Langsdorf, Harry M. Moore, C. H. Shutt, H. Unterberg, A. H. Diehr. Councilors absent: Drs. Vilray P. Blair, E. Lee Dorsett, C. H. Neilson, P. F. Pfingsten, W. H. Vogt. Visitors present: Drs. Vincent Jones, Leith H. Slocumb, Archer O'Reilly.

#### Meeting of April 8, 1931

The meeting was called to order at 8:30 p. m. by the president, Dr. Charles E. Hyndman.

A letter from Col. George A. Skinner, Surgeon General of the Medical Corps, U. S. Army, suggesting that a military committee be appointed, was read.

On motion of Dr. Vilray P. Blair, seconded by Dr. C. H. Shutt, the president was authorized to appoint a military committee.

A letter of resignation from corresponding membership from Dr. Edward Kultgen, Elaine, Arkansas, was read and on motion his resignation was accepted.

The report of the membership committee was read by the secretary. On motion of Dr. H. S. Langsdorf, seconded by Dr. P. F. Pfingsten, the report was received and the following applicants were voted upon collectively and elected to membership: Active: John W. Henderlite, 408 Lister Building. Junior: W. Tupper Plümpe, 4145 Minnesota Ave., Theodore R. Siebert, 2345 Lafayette Ave. Corresponding: D. D. Monroe, Edwardsville, Ill.

Dr. W. H. Vogt moved that the matter regarding the request of the Third District (St. Louis) of Missouri State Nurses' Association relative to the classification of communicable diseases be accepted as submitted by the committee, and the committee instructed to write a letter to that organization. Seconded by Dr. H. S. Langsdorf and carried.

The executive secretary, Mr. Elmer E. Bartelsmeyer, reported orally. On motion of Dr. C. H.

Shutt, seconded by Dr. W. C. G. Kirchner, Mr. Bartelsmeyer was granted the privilege of attending medical meetings and participating in round-table discussion of medical problems. He was also authorized to accept a membership in the Court of Honor of the Boy Scouts.

Councilors present: Drs. H. H. Bell, V. P. Blair, C. E. Hyndman, A. R. Kieffer, W. C. G. Kirchner, H. S. Langsdorf, P. F. Pfingsten, C. H. Shutt, W. H. Vogt and A. H. Diehr. Councilors absent: Drs. Lee Dorsett, Harry M. Moore, C. H. Neilson, H. Unterberg. Visitors present: Drs. Vincent Jones and Archer O'Reilly.

#### Meeting of May 20, 1931

The meeting was called to order by the president, Dr. Charles E. Hyndman.

A letter from the committee on public dental education of the St. Louis Dental Society concerning the promotion of a public dental health program in St. Louis, was read and on motion of Dr. V. P. Blair, seconded by Dr. H. Unterberg, the proposition was endorsed.

The report of the committee on health and public instruction was read by the executive secretary, Mr. Elmer E. Bartelsmeyer.

Dr. H. Unterberg moved that the report, which was based on the committee's investigation of the proposed bond issue for eleemosynary institutions, be received, published in the *Bulletin* and presented to the Society at a general meeting for recommendations of approval. Seconded by Dr. C. H. Neilson and carried.

The report of the membership committee was read by the secretary and on motion of Dr. H. S. Langsdorf, seconded by Dr. W. C. G. Kirchner, the report was received and the following were elected to membership: Active, Harvey J. Howard, Washington University School of Medicine. Junior: Lee N. Hamm, 1951 St. Louis Ave.; Warren G. Marston, St. Mary's Infirmary; James H. Ready, 1923A Cooper Ave. Corresponding: I. L. Foulon, East St. Louis; Henry McMunn Voris, East St. Louis.

Dr. A. R. Kieffer read the report of the house committee. Dr. H. Unterberg moved that the report be received and that the Espenschied Plaque be placed on the wall of the banquet room. Seconded by Dr. V. P. Blair and carried.

Councilors present: Drs. H. H. Bell, V. P. Blair, C. E. Hyndman, A. R. Kieffer, W. C. G. Kirchner, H. S. Langsdorf, C. H. Neilson, H. Unterberg, A. H. Diehr. Councilors absent: Drs. Harry M. Moore, P. F. Pfingsten, C. H. Shutt, W. H. Vogt. Councilors excused: Dr. Lee Dorsett. Visitors present: Drs. Vincent Jones and Archer O'Reilly.

#### Meeting of the General Society, May 5, 1931

The meeting was called to order at 8:45 p. m. by the president, Dr. Charles E. Hyndman.

The guest speaker, Dr. Anne Walter Fearn, Shanghai, China, was introduced by Dr. E. Lee Myers and gave a talk on "China: Its Medical, Social and Political High Lights." Dr. Fearn showed lantern slides of China and her sanatorium at Shanghai.

Attendance 266.

#### Meeting of May 19, 1931

The meeting was called to order at 8:40 p. m. by the president, Dr. Charles E. Hyndman.

The following symposium on arthritis was given: "Arthritis: Its Causative Factors and Treatment," illustrated with lantern slides, Dr. A. P. Munsch.

"Orthopedic Treatment of Arthritis," Dr. Archer O'Reilly.

"Physical Measures in the Treatment of Arthritis," Dr. F. H. Ewerhardt.

"My Personal Experience With Sympathetic Ganglionectomy," illustrated with lantern slides, Dr. W. T. Coughlin.

The report of the chairman of the delegation to the Missouri State Medical Association meeting at Joplin was read by the secretary. Dr. W. T. Coughlin moved that the report be accepted. Seconded by Dr. A. P. Munsch and carried.

The report of the cancer survey made in St. Louis, in December, 1930, by the American Society for the Control of Cancer was presented by the president.

Dr. L. H. Behrens moved that the president be authorized to appoint a committee of three to select the salient points in the report and present them to the Society. Seconded by Dr. J. Albert Key and carried.

Attendance 117.

#### Meeting of May 26, 1931

The meeting was called to order at 8:35 p. m. by the president, Dr. Charles E. Hyndman.

Dr. Joseph Brennemann, Chicago, a guest of the St. Louis Pediatric Society, was introduced by Dr. Gustave Lippmann and gave a talk on "Observations on the Treatment of Empyema With Special Reference to the Role of Aspiration," illustrated with lantern slides.

Dr. Eugene T. McEnery, Chicago, who was also a guest of the Pediatric Society and who has been associated with Dr. Brennemann discussed their work on empyema, giving a lantern slide demonstration.

The discussion was opened by Dr. Evarts Graham who gave a lantern slide demonstration, followed by Drs. Lawrence Schlenker and Park J. White.

Attendance 197.

ALVIN H. DIEHR, M.D., Secretary.

#### WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met at Ava, May 7, at 2:00 p. m., in the office of Drs. J. L. and M. C. Gentry with the president, Dr. J. D. Ferguson, Ava, in the chair. The following members were present: Drs. J. A. Fuson, Mansfield; R. M. Norman and M. C. Gentry, of Ava; A. C. Ames and R. W. Denney, of Mountain Grove. Dr. J. L. Gentry, Ava, returned from a trip to the country and came in just as the meeting was about to adjourn.

The program of voluntary contribution was opened by Dr. M. C. Gentry, Ava, who suggested the use of ethyl chloride sprayed on a piece of gauze over the nostrils as a general anesthetic for minor operations, such as lancing boils or any operation not lasting over a minute. He also spoke of the use of insulin in cases other than diabetes, such as cases where it is desirable to promote more nourishment than is otherwise possible in order to produce a gain in weight or greater physical strength.

Dr. A. C. Ames, Mountain Grove, reported a case of uterine inertia, podalic version and stillbirth followed by death from postpartum hemorrhage, in a woman with a high degree of diabetes mellitus of unknown duration, and raised the question as to how much of the former trouble was due to the latter condition. He also reported a case of puerperal convulsions in which podalic version and speedy delivery saved both mother and child. He emphasized the fact that no opportunity had been given for prenatal examination or treatment by which no doubt much of the trouble might have been avoided.

Dr. R. W. Denney, Mountain Grove, reported a



case of fracture of the femur in an elderly woman having pernicious anemia where it was impossible to secure union although the bone was held well in place. Death occurred some six weeks later from the combined conditions.

Dr. J. A. Fuson, Mansfield, introduced the subject of undulant fever and reported a case which bore strong evidence of belonging in that classification in the list of diseases.

Dr. R. M. Norman, Ava, reported several cases thought to be tularemia which he had recently come in contact with and it was suggested that no doubt all of us occasionally see cases of tularemia and undulant fever that we fail to recognize.

Dr. R. W. Denney, Mountain Grove, mentioned Hodgkin's disease and said he had recently seen a case which he suspected of being Hodgkin's disease, whereupon Dr. A. C. Ames, who had seen the same patient but had not made a thorough examination, read a few notes giving the characteristics of that disease. It was generally agreed that Dr. Denney's case was in the early stages and of a chronic character but most probably Hodgkin's disease.

The application for membership of Dr. R. W. Denney, Mountain Grove, who has recently come from St. Louis, was presented and referred to the board of censors. The board of censors approved the application and Dr. Denney was elected a member.

At this point in the meeting a man with several fingers mangled by machinery came in and the meeting adjourned informally at 4:00 p. m. while the Drs. Gentry went to care for the patient.

The next meeting will be held in Norwood, August 6.

A. C. AMES, M.D., Secretary.

## TRUTH ABOUT MEDICINES

**PERTUSSIS VACCINES** Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that pertussis bacillus vaccine was admitted to New and Nonofficial Remedies in 1914 on the basis of what appeared to be acceptable clinical evidence. In subsequent years, when vaccine therapy was at its height, pertussis bacillus vaccine was used extensively and yet critically controlled reports did not become available. In 1928 the Council voted to omit pertussis vaccines with the close of the longest period for which any one was accepted, unless in the meantime acceptable evidence for its usefulness in the prevention or treatment of whooping cough became available. No acceptable confirmatory evidence having become available, the Council voted to confirm its decision to omit from New and Nonofficial Remedies all pertussis vaccines. (Jour. A. M. A., February 21, 1931, p. 613.)

**THROMBOPLASTIN HYPODERMIC**—Squibb Omitted from N. N. R.—Thromboplastin Hypodermic—Squibb is a sterilized extract of cattle brain in physiologic solution of sodium chloride intended for hypodermic injection to increase the coagulability of the blood. The Council on Pharmacy and Chemistry first accepted thromboplastic substances in 1915. Since then little or no additional evidence has developed for the value of these preparations: their intravenous use almost certainly presents dangers, and the Council has become convinced that there is no satisfactory evidence for their effectiveness when injected subcutaneously. In view of this the Council decided, unless new evidence should appear, not to include hereafter in New and Nonofficial Reme-

dies any preparation of this type except for local application. Since Thromboplastin Hypodermic—Squibb is intended for hypodermic or subcutaneous injection, E. R. Squibb & Sons were informed of the action of the Council and asked to submit evidence in support of the value of the hypodermic administration of thromboplastic substance. The submitted evidence did not permit a revision of the Council's conclusion that the hypodermic or subcutaneous administration of Thromboplastin Hypodermic—Squibb or of other thromboplastic substances is not therapeutically valuable and therefore omitted the Squibb preparation from New and Nonofficial Remedies. (Jour. A. M. A., February 21, 1931, p. 613.)

**KOREMLU, A DANGEROUS DEPILOYATORY.**—There has been on the market for some time a depilatory sold under the name "Koremlu Cream," marketed first under the trade name "Kora M. Lublin," more recently under the style "Koremlu Inc.," both of New York City. According to the advertising, Koremlu is "guaranteed to devitalize superfluous hair roots on face or any part of the body." From information received it was quite apparent that Koremlu contained thallium acetate. Reports of serious effects of the use of Koremlu Cream have been reported that are typical of thallium poisoning. The A. M. A. Chemical Laboratory analyzed the preparation and concluded that it consisted essentially of an ointment containing approximately 7 per cent thallium acetate and 9.5 per cent of zinc oxide. Dr. Sabouraud who studied the effects of thallium as a depilatory, declared that any ointment containing more than 1 per cent of thallium acetate is dangerous. He cautioned that but small amounts of the one-per-cent ointment should be used at one time; no limit is given to the amount of Koremlu, which is much stronger, that should be applied. (Jour. A. M. A., February 21, 1931, p. 629.)

**POTASSIUM THIOCYANATE IN HYPERTENSION.**—Thiocyanates resemble iodides in their therapeutic effect, but they do not affect the thyroid gland. As with iodides, the action of thiocyanates can not be satisfactorily explained. The reduction of blood pressure is dependent on the dose. The small dose of 0.1 Gm. (1½ grains) three times daily, frequently fails to produce an appreciable reduction. The large dose, 0.3 Gm. (5 grains) three times a day, reduces blood pressure in a majority of cases but it is so liable to produce untoward results that such patients must be under careful supervision. The Council on Pharmacy and Chemistry has refused admission of potassium thiocyanate to New and Nonofficial Remedies because it considered the evidence for the drug's therapeutic value inconclusive and published a report giving the limitations of therapy with this drug. (Jour. A. M. A., February 21, 1931, p. 632.)

**LIMITATIONS OF BACTERIOPHAGE THERAPY.**—Recent investigations suggest that future therapy with bacteriophage preparations must be limited to certain definite anatomic types of infection. The deductions drawn are that no therapeutic effects whatever are predictable for bacteriophage except under conditions in which local extrabacterial bacteriophage concentration can be raised and maintained. From this it appears that bacteriophage therapy would be a predictable disappointment in erysipelas, furunculosis, pneumonia, pyelitis, cellulitis and bacteremia, and in cystitis except by concentrated irrigation. The use of this therapy would thus be limited to such closed organs as the intestine and to well encapsulated pus cavities. (Jour. A. M. A., February 28, 1931, p. 693.)

## BOOK REVIEWS

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1930. Cloth. Price, \$1.00. Pp. 91. Chicago: American Medical Association, 1931.

This book is essentially a record of the negative actions of that distinguished body, the Council on Pharmacy and Chemistry of the American Medical Association; that is, it sets forth the findings concerning medicinal preparations which the Council has voted to be unacceptable for recognition and use by the medical profession. Many of the reports record outright rejection or the rescinding of previous acceptances; others report in a preliminary way on products which appear to have promise but are not yet sufficiently tested or controlled to be ready for general use by the profession.

Among the reports recording outright rejection are those on: Avesan (H), formerly Nuforal, a mixture stated to be composed of formic acid, sodium nucleinate, camphor, allyl sulphide and chlorophyll, with traces of salicin and sulphuric ether, marketed with unwarranted claims of usefulness in the treatment of tuberculosis, asthma, and other respiratory diseases; Ceanothyn, once before rejected and still found to be marketed with unsupported therapeutic claims; Collosol Calcium and Collosol Kaolin, so-called colloidal preparations, the former an unscientific mixture of unproved value, the latter a possibly dangerous preparation, and both marketed with unwarranted claims; Ephedrol with Ethylmorphine Hydrochloride, an unscientific ephedrine preparation marketed under an unacceptable proprietary name with unwarranted therapeutic claims; Farastan, an unscientific iodine-cinchophen preparation proposed for routine use in "arthritis . . . and Rheumatoid conditions"; Haley's M-O Magnesia-Oil, a magnesia magma and liquid petrolatum mixture in fixed proportions marketed with emphasis on the "M-O"; Lydin, a testicular extract, marketed with claims of value in the treatment of impotence; and Metatone, a shot-gun "tonic" mixture marketed under a proprietary name with unwarranted therapeutic claims.

NEW AND NONOFFICIAL REMEDIES, 1931, containing descriptions of the articles standing accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1931. Cloth. Price, postpaid, \$1.50. Pp. 481 + LVI. Chicago: American Medical Association, 1931.

This volume is the annual publication of the Council on Pharmacy and Chemistry of the American Medical Association giving the latest authentic information concerning those of the newer medicinal preparations found worthy of the consideration and use of the medical profession. Each year the Council scans the general articles under which the various preparations are classified and revises these to conform to the latest and best medical thought.

A glance at the preface shows that a number of preparations have been omitted because they conflict with the rules that govern acceptance, because their distributors did not present evidence to demonstrate their continued acceptability, or simply because the manufacturers have taken them off the market. Important revisions have been made in a number of the general articles and in the descriptions of various preparations. Among the new preparations that have been found by the Council during the past year to be eligible for admission to the book are: Amytal and Pulvules Sodium Amytal,

3 grains, barbituric acid derivatives for use preliminary to surgical anesthesia; Thio-Bismol, quinine bismuth iodide, sodium potassium bismuthyl tartrate, and Tartro-Quinioline, bismuth compounds for use in the treatment of syphilis; Scillaren and Scillaren-B, preparations containing the squill glucosides; two new cod liver oil concentrates; Synephrine, a new vasoconstrictor, and synthetic thyroxine.

New and Nonofficial Remedies should be in the hands of all who prescribe drugs. The book contains information about the newer *materia medica* which cannot be found in any other publication.

THE DIET BOOK. For Doctor, Patient and Housewife. With Specimen Menus for One Week and Recipes. By Marguerite Requa Rea (Mrs. Alec. L. Rea). With a foreword by Sir James Purves-Stewart, K.C.M.G., C.B., M.D., (Ed.), F.R.C.P. (London), Physician to Westminster Hospital. Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1931. Price \$2.75.

In certain respects our American civilization seems to be an integral part, root and stem, of the English life and tradition. This is particularly true in the case of our common literature. A native born American standing in the Poets' Corner of Westminster Abbey will probably feel that the literary heroes there entombed are as truly kindred to him as to any Englishman round about. Identity of language and literary tradition have bridged the geographic gap. The identity holds good, but to a lesser degree in many other aspects of our culture and in still others there is distinct diversion from the English. The reason for such diversion is apparent. America is after all a mixture of nationalities, a true melting pot except in the matter of language. Our cuisine and eating habits have been borrowed from our component nationalities. Moreover, the vast extent of our country has given us a wealth and variety in the choice of food stuffs second to none. For these reasons there has been developed, and the process is by no means complete, a more or less distinctive American cuisine. The foregoing is by way of preface and explanation of the reviewer's opinion that no foreign made book on dietetics can today meet the needs of the American dietitian or suit the palate of the American patient. The present volume, however excellent it may be, is no exception. It can be of little use to the profession in America. J. E. C.

LES FOYERS AMYGDALIENS. Par G. Worms, Médecin Lieutenant-Colonel Professeur au Val-de-Grâce; et J. M. Le Mée, Laryngologiste des Hôpitaux et de l'American Hospital de Paris. 55, Rue de Varenne, VILLE, Paris, France.

This book, "The Tonsil Region" as one might translate the title, is essentially a review and presentation of a stupendous bibliography collected personally by the writers from a selected list of laryngologists, pediatricians and internists of the world.

The authors communicated with a large number of these specialists and propounded inquiries on the tonsil question and the part it may or may not play in relation to health and disease, with very special reference to focal infection, the latter topic seemingly being taken less seriously in France than it is in this country. Eight hundred or more replies are quoted, about half of them being from the United States the others coming from England, Belgium, Germany, Austria, Hungary, France and various other countries of Europe, Africa, Asia and



South America. There is a complete bibliography of publications in this field since 1915, comprising a second referendum of over six hundred authors. Deductions and conclusions are left almost entirely to the reader.

A. B.

THE FACTOR OF INFECTION IN THE RHEUMATIC STATE.

By Alvin F. Coburn, M.D., Resident Physician of the Presbyterian Hospital in the City of New York. Baltimore: The Williams & Wilkins Company. 1931.

Dr. Coburn has made a study of the "rheumatic state" as encountered in New York City and by contrast its incidence and variations in Porto Rico. After discussing the bacteriological studies in rheumatic disease he presents its annual, seasonal and regional distribution, the fluctuations in the disease with change in residence, the influence of epidemic infection and the association with upper respiratory disease. The study and concept of the "rheumatic family" is most timely. A unique study was made of environmental influences and the result of the transportation of a group of rheumatic patients from New York to Porto Rico.

An extensive study is made of the bacteriology of the upper respiratory tract in its relation to the rheumatic state and of skin reactions in susceptible individuals.

The book is an important contribution to our knowledge of acute rheumatic fever and all its associated manifestations and forms an invaluable fundamental basis for further clinical study.

W. B.

PIERSOL'S HUMAN ANATOMY. Including Structure and Development and Practical Considerations. Ninth edition revised under the supervision of G. Carl Huber, M.D., Sc.D., Professor of Anatomy; Director of Anatomic Laboratories and Dean of the Graduate School, University of Michigan. With seventeen hundred and thirty-four illustrations of which fifteen hundred and twenty-two are original and four hundred and sixty are in color. Philadelphia and London: J. B. Lippincott Company. Price \$10.00.

Dr. Huber thus explains why this new revision is published: "The present seemed an appropriate time for another revision and when asked to undertake this I was prompted to acquiesce, partly owing to a sense of responsibility, but largely owing to a feeling of obligation to carry on a work to which others had so largely contributed." This obligation Dr. Huber nobly assumed and as usual the profession is presented with a volume which will guide the most exacting student of anatomy in proper terminology (B.N.A.), lucid description, appropriate illustrations and completeness of detail.

The embryology, "practical considerations," and serially dissected parts adequately replace some volumes on embryology and applied anatomy and "dissectors" respectively. The student who is physically able to carry this book about need not purchase works on these three allied branches of anatomy for Piersol is wealthy in information on all of them. It has been said that "Books, like men, have characters that can be analyzed." One would say that Piersol in 1906 tried to improve on Gray, which had then run through 16 editions since 1858, and had succeeded. Piersol and his successors have kept just one jump ahead of contemporary authors of anatomical treatises by appealing to the eye-minded among students and practitioners, and that means most of us. The appeal of the illustrations

is irresistible. If you ever wondered just how the vomer lay in relation to the ethmoid and the palate just consult Piersol and you will never wonder again. The picture will be impressed indelibly on your mind.

One wonders why a text on human anatomy, which should deal with the science of human form as contrasted with function or physiology, cannot go back to first principles and omit embryology, hematology and general medicine. Then one could go to bed with a volume to read which would not deepen Sibson's furrow. One could turn to a medical work for such facts as these: "gout affects peculiarly the metatarsophalangeal joint of the great toe. In 516 cases of gout, 341 were of one or both of the great toes alone and 373 of the great toe with some other part." (p. 453.) But, as has been said, "Books, like men, have characters. . . ." and Piersol as of by-gone days is the storehouse of anatomical knowledge,—derived, applied and implied,—that's its character and its personality.

It is really a fact that with this one volume a student of medicine with very limited funds could become fully informed in embryology, dissection anatomy, surface and surgical anatomy and applied anatomy, without the purchase of additional books. Whether this is an asset or a liability I leave to wiser heads. Certainly none will look this volume over without wanting it in his collection. E. P. H.

FUNDAMENTALS OF DERMATOLOGY. By Alfred Schalek, M.D., Professor of Dermatology and Syphilology, University of Nebraska College of Medicine, etc. Second edition, thoroughly revised. Illustrated with 58 engravings. Philadelphia: Lea & Febiger. 1931.

This compact yet comprehensive and well-balanced little volume first appeared less than half a decade ago. That a new edition has been called for so quickly indicates that there is a wide demand for such a handbook. In the opinion of the reviewer, the great value of this publication is due to two things: the clear, scholarly manner in which the subjects are presented, and the sensible and practicable methods of treatment recommended by the author. Only a man of Schalek's learning and skill could compress so much valuable information into so small a space. Every sentence means something. Not a word is wasted. Many of the prescriptions are original and all are reliable and trustworthy. For many years I have employed Schalek's paste (phenol 1 part, salicylic acid 7 parts, precipitated sulphur 12 parts, zinc paste, which consists of equal parts of zinc oxide, starch and vaseline, 80 parts) with much satisfaction in combating ringworm of the palms and soles. I consider it far superior to Whitfield's ointment.

One of the most interesting features in the book is the collection of "Dermatological Aphorisms." If the general practitioner would only remember to "use mild soothing applications in acute inflammatory conditions of the skin and stimulate infiltrated and squamous affections" some of us old and sophisticated leopards of the dermatological jungles would spend far less time fighting obesity. Such suggestions as "Roentgen ray treatment is valuable in acne, but requires experience and great caution," and "Consider the intravenous injection of arsphenamine a responsibility to be given only with the greatest care and full knowledge of details," are well worth many times the cost of the book. An admirable little volume for the library of every physician.

R. L. S

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### ACUTE INTESTINAL OBSTRUCTION\*†

ALTON OCHSNER, M.D.

NEW ORLEANS, LA.

The clinical picture produced by an obstruction of the intestinal tract varies considerably and is dependent upon a number of different factors. A stenosis in the rectosigmoid portion of the intestine may exist for a relatively long period of time and cause few or no symptoms aside from obstipation, whereas a similar untreated occlusion of the "upper" jejunum produces a condition which becomes rapidly fatal. It is well known that, everything else being equal, the higher the obstruction is located in the intestinal tract the more pronounced are the symptoms, the graver is the prognosis and the more urgent becomes the treatment. The presence or absence of vascular interference of the intestine together with the obstruction to the fecal stream is of utmost importance as regards prognosis and treatment.

It is evident, therefore, that in the treatment of acute intestinal obstruction it is necessary to differentiate various types of obstruction, viz.: (1) those in which there is interference with the vascular supply to a loop of gut from those in which there is none; (2) those obstructions which are located relatively "low," and (3) those cases in which the obstruction is due to a mechanical hindrance or blocking of the lumen of the intestinal tract from those in which there exists a dilatation of the intestine due to muscular relaxation,—the so-called adynamic ileus.

In considering cases of ileus in which there is interference with the blood supply of the intestine, it should be emphasized that even though this strangulation is commonly thought to occur in the extramural blood vessels, i. e., in the mesentery, it may also occur within the wall of the gut. This may be partly or wholly responsible for the symptoms occurring in high

intestinal obstruction, as suggested by the researches of Morton<sup>1</sup> and Dragstedt, Lang, and Millet.<sup>2</sup> It must be remembered that the upper portion of the intestinal tract, i. e., the stomach, duodenum, and possibly the upper portion of the ileum, is secretory, whereas the lower portion of the intestinal tract is absorptive. Morton<sup>1</sup> found that the duodenum secreted from five to ten times as much fluid as the ileum in a given period of time. As a result of this and also because of the presence of the biliary and pancreatic secretions in the upper intestine, the intra-intestinal pressure within the duodenum and the upper jejunum is much greater than in the ileum. Morton<sup>1</sup> found that whereas the normal intra-intestinal pressure varies from 2 to 4 cm. of water that after obstruction had been present for twenty-four hours the pressure within the duodenum and ileum had increased to from 28 to 36 and to from 4.5 to 5 cm. of water, respectively. Dragstedt, Lang, and Millet<sup>2</sup> have shown that there is considerable variation in the intramural blood supply of the various parts of the intestine and as a result of this anatomical variation pressure within the gut exerts varying influences on the blood supply of the gut. These authors found that the blood flow in the veins, located in the walls of the intestine, ceased when intra-intestinal pressure within the duodenum, jejunum, ileum and colon reached a height of from 35 to 45; 55 to 65, and 95 mm. of mercury, respectively. This difference they believe is due to a variation in the length of the intramural blood vessels. They found that if a cross section of the bowel be represented by the face of a clock with the mesenteric attachment at six o'clock the vasa recti pierced the muscularis in the case of the duodenum at approximately five and seven o'clock (figure 1), in the case of the jejunum and ileum at nine and three o'clock (figure 2), and in the case of the colon at two and ten o'clock (figure 3). It is obvious that an obstruction "high" in the intestinal tract with its resultant marked increase in intra-intestinal

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

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pressure will produce a disturbance in vascular supply by pressure on the intramural vessels, which are located between the mucosa and the muscularis. In the colon, however, in which the greater portion of the vessel lies outside the muscularis an increased intra-intestinal pressure exerts relatively little effect on the blood vessels. It is apparent, therefore, that the symptoms and signs in "high" intestinal obstruction which are not unlike those in "low" intestinal obstruction with an associated strangulation may be due in part to the intramural strangulation with its dependent changes. An additional important factor in high intestinal obstruction is that substances which are essential for life are not absorbed by the intestine because the obstruction is above the absorptive area, as exemplified by the recent researches of Wangenstein and Leven.<sup>3</sup> These investigators found that an experimental obstruction of the terminal ileum (the midportion of the absorptive area of the intestinal tract) produces death in from five to seven days, whereas in another group of animals in which the obstructed terminal ileum was anastomosed to the stomach, the average survival period was 19.9 days, and there were no changes in the blood chemistry. Wangenstein and Leven<sup>3</sup> found that obstruction in the terminal ileum produced death of the animal in from five to seven days and that the administration of sodium chloride solution had practically no effect in prolonging the life of the animal. Dehydration, alkalosis and hypochloremia cannot be entirely responsible for the symptoms in "high" intestinal obstruction and in "low" intestinal obstruction in which the interference with the blood supply of the gut is evident, because the correction of these factors is of no avail. There exists some additional factor which is undoubtedly a toxemia, the toxin being derived from the lumen of the obstructed gut. There is considerable controversy among authorities concerning the character of this toxin and its mode of origin. The toxin is in all probability the result of an incomplete cleavage of a protein molecule. An attempt has been made by many different observers to isolate the toxin which is responsible for death in intestinal obstruction. An outstanding criticism of this experimental work is that with two exceptions the toxin has been isolated from the intestinal contents and has not been obtained from the blood stream. However, Sugito<sup>4</sup> and Scholefield<sup>5</sup> found that the blood obtained from the portal of mesenteric veins of animals dying from intestinal obstruction, when injected into mice caused the death of the mice.

Haden and Orr<sup>6</sup> were the first to emphasize the importance of the changes in the blood

which occur in "high" intestinal obstruction and which also occur in "low" intestinal obstruction that has existed for a relatively long period of time. These changes consist of a decrease in the chloride content of the blood, a rise in the carbon dioxide combining power of the plasma (alkalosis) and, in more advanced cases, an increase in the nonprotein nitrogen content of the blood. There is some controversy concerning the cause of these blood changes. Haden and Orr<sup>6</sup> are of the opinion that the decrease in the blood chlorides is due to fixation of the chloride ion in the tissues by the toxin which is formed in the intestinal tract. Copher and Brooks,<sup>7</sup> however, because they were unable to demonstrate a decrease in blood chlorides in animals with a "high" closed intestinal loop, believe that hypochloremia in ileus is not due to a fixation of the chloride radical but is due to the loss of chlorides in the vomitus, as occurs in cases of pyloric obstruction.

#### SYMPTOMS AND SIGNS OF ACUTE INTESTINAL OBSTRUCTION

Symptoms and signs of acute ileus are usually quite characteristic and, if one is familiar with the early clinical picture, one should have relatively little difficulty in diagnosing intestinal obstruction in its early stages. It is important to differentiate between the mechanical and the adynamic varieties, both from the standpoint of prognosis and of treatment. This differentiation is not always easy, however, because one of the most frequent causes of adynamic ileus is an antecedent mechanical ileus. Intermittent and colicky pain is the earliest and, therefore, the most valuable symptom in mechanical intestinal obstruction. It is the result of hyperperistalsis in which there is an attempt on the part of the intestinal tract to overcome the organic hindrance. Characteristically the pain is cramp-like and intermittent. Between the attacks of pain the patient may feel remarkably well and have no symptoms whatsoever. Early in the course of acute ileus, obstipation may be lacking and no dependence should be placed upon this symptom. In fact, several evacuations may occur after the onset of the patient's symptoms due to the hyperperistalsis in the bowel distal to the obstruction. Vomiting may be an early symptom, especially in the "high" intestinal obstruction. The loss of fluids and hydrochloric acid in the vomitus is in part responsible for the hypochloremia and dehydration. Obstructions located "low" in the intestinal tract are not associated with vomiting until late in the course of the condition. The most valuable physical finding is an increase in peristaltic sounds on auscultation of the abdomen, which is due to the hyperperistalsis.

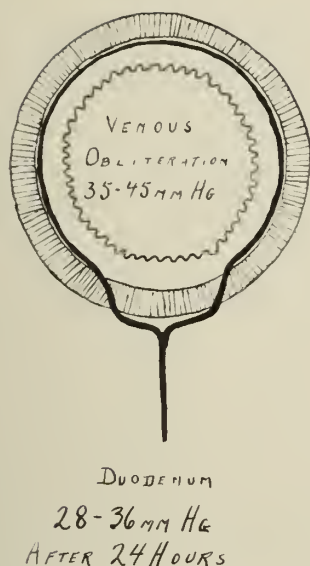


Fig. 1. (Modified after Dragstedt, C. A.; Lang, V. L., and Millet, P. F.: Arch. Surg. 18:2257, 1929, and Morton, J. J.: Arch. Surg. 18:1119, 1929) Diagrammatic drawing representing the relatively long intramural position of the blood vessels in the duodenum as demonstrated by Dragstedt, Lang, and Millet, who also found that venous obliteration occurred when the intraduodenal pressure increased to from 35 to 45 mm. of mercury. Morton showed that the intraduodenal pressure following obstruction for 24 hours rose to from 28 to 36 mm. of mercury.

Otherwise, relatively little is apt to be found on abdominal examination unless the obstruction is located low in the intestinal tract and has existed for a relatively long period of time. Characteristically, in "high" intestinal obstruction, no distention, tenderness, or rigidity is present. In adynamic ileus the colicky pain so characteristic of a mechanical obstruction is absent. If the ileus is associated with and dependent upon a peritonitis, the abdominal pain is dull and constant. In adynamic ileus superimposed upon a mechanical ileus a history of colicky pain can be obtained, but at the time the patient is seen there is no pain. Auscultation of the abdomen is valuable in that no peristaltic sounds can be heard.

An extremely important diagnostic procedure in acute ileus, both in the mechanical and adynamic varieties, is roentgenography of the abdomen without the use of contrast media. Because of the increased secretion and diminished absorption from the gut proximal to mechanical obstruction or in loops of gut in adynamic ileus, there is an accumulation of gas and fluid within the lumen of the bowel. A roentgenogram obtained in such a way that localized gas collections above fluid levels within the dilated loops of gut are visualized is diagnostically of great value. Technically, this may be obtained by securing an anterior posterior roentgenogram of the abdomen with the patient in the upright position, either sitting or

standing. In those patients who are too ill even to sit, an anterior posterior plate may be obtained with the patient on either the right or left side or a lateral plate with the patient lying in the supine position. The finding of multiple fluid levels capped above by gas is pathognomonic of acute intestinal obstruction. The value of this procedure as concerns early diagnosis is emphasized by Wangenstein and Lynch's<sup>8</sup> findings that within four to five hours after complete occlusion of the intestine of the animals there is roentgenologic evidence of distention of the intestine proximal to the obstruction. Ochsner and Granger<sup>9</sup> report their results from the use of this procedure in 32 cases of intestinal obstruction. In 12 per cent the roentgenogram was diagnostic, even though the symptoms and signs were not definite. Wangenstein<sup>8</sup> has demonstrated experimentally that the production of fluid levels is much less marked in ileus in which there is an associated strangulation than in those cases in which there is no interference with the blood supply.

The prognosis in acute intestinal obstruction depends upon (1) the level of obstruction, (2) the degree of vascular interference, (3) the type of obstruction (mechanical or adynamic) and, last but not least, the time at which the condition is corrected. Miller<sup>10</sup> states that the mortality rate in acute intestinal obstruction



Fig. 2. (Modified after Dragstedt, C. A.; Lang, V. L., and Millet, P. F.: Arch. Surg. 18:2257, 1929, and Morton, J. J.: Arch. Surg. 18:1119, 1929) Diagrammatic drawing showing the relative position of the intramural and extramural blood vessels of the ileum. Venous obliteration (Dragstedt, Lang, and Millet) occurs when the intra-intestinal pressure rises to from 55 to 65 mm. of mercury. Morton has demonstrated that after 24 hours' obstruction the intra-intestinal pressure rises only to from 4.5 to 5 mm. of mercury pressure.



risers approximately one per cent for each hour of procrastination. Van Beuren<sup>11</sup> correctly states, "The longer a patient with intestinal obstruction lives before operation, the sooner he dies afterwards." The importance of early recognition of cases of acute intestinal obstruction thus becomes evident, and if better results are to be obtained in acute intestinal obstruction treatment must be instituted earlier.

#### TREATMENT

A great deal has been accomplished in the treatment of acute ileus by the preoperative preparation of patients with intravenous injections of sodium chloride solutions. Haden and Orr<sup>6</sup> demonstrated that because of the hypochloremia, alkalosis, and dehydration an attempt should be made to correct these conditions as soon as the patient is seen. Much can be accomplished postoperatively as well as preoperatively by the prevention and treatment of the hypochloremia by the intravenous and subcutaneous administration of sodium chloride solution. Large quantities of 1 per cent sodium chloride solution should be given intravenously as a preoperative measure. Gastric lavage is of extreme importance, especially preoperatively, in order to empty the stomach of the retained gastric and regurgitated intestinal contents. General anesthesia should not be employed in acute intestinal obstruction, because of the danger of aspiration of vomited material. Preferably, spinal or splanchnic analgesia combined with local infiltration of the abdominal wall in the latter are the methods of choice. The operative procedure depends largely upon the condition of the patient and the character of the lesion encountered. It is imperative that the obstruction be relieved in some manner, but it is equally imperative that the patient's life should not be jeopardized by too extensive an operation, and because of this a simple enterostomy proximal to the obstruction may be all that is justifiable. There is probably no condition which requires more gentleness than acute intestinal obstruction. Bunnell states, "Every manipulation is a shove nearer the grave." In those cases in which the mechanical obstruction is due to a band of adhesions, simple division of the adhesion may be all that is necessary to relieve the obstruction. However, in those cases in which an extensive lesion is present, the resection of which might endanger the patient's life, it is far better to have a living patient with the original lesion but in whom the bowel proximal to the obstruction has been drained than a dead one in whom the obstructed lesion has been removed. Subsequently, after the patient has recovered from

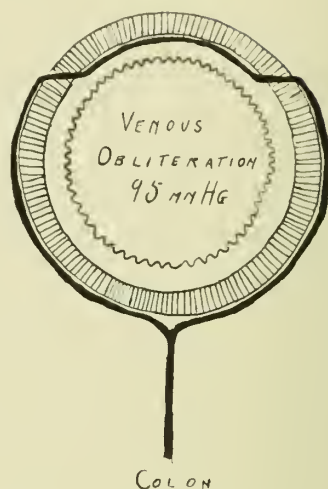


Fig. 3. (Modified after Dragstedt, C. A.; Lang, V. L., and Millet, P. F.: Arch. Surg. **18**:2257, 1929) Diagrammatic drawing showing the relative lengths of the intramural and extramural vessels of the colon. Venous obliteration occurs only after the intracolonic pressure has risen to 95 mm. of mercury

the symptoms produced by the acute obstruction, extirpation of the original lesion may be performed with safety. In those cases in which an adynamic ileus is superimposed upon a mechanical ileus the production of multiple enterostomies, as recently advocated by Dixon,<sup>13</sup> might be of value. It is the experience of most surgeons that a single enterostomy is often of no value.

The postoperative treatment should consist of complete rest of the intestinal tract which is obtained by the administration of nothing by mouth until normal peristalsis is reestablished. In order to combat the already existing dehydration, large quantities of fluid (from 3 to 4 liters) should be administered every twenty-four hours. Physiologic sodium chloride solution together with a 5 per cent glucose solution may be given intravenously, normal saline solution hypodermically, and either physiologic saline, 2 per cent glucose, or tap water rectally. It is important that determinations of the blood chlorides and the carbon dioxide combining power of the plasma be made frequently in order to prevent a continuation or recurrence of the hypochloremia and alkalosis. Gastric lavage is a valuable measure and should be employed until all nausea has ceased. The application of heat to the abdomen is valuable in reestablishing peristalsis. The heat is best applied in the form of an electric light tent. Müller<sup>14</sup> believes that in paralytic ileus there is a decrease in the movement of the intestinal tract and an associated increase in secretion. Because of the viscerosplanchnic balance, he has shown that the application of heat to the abdomen produces a dilatation of the peripheral

vessels and an associated contraction of the splanchnic vessels. In so doing, the secretion of the intestine is diminished and the motility increased. The author has found that the application of heat to the abdomen is the most valuable means of reestablishing peristalsis.

The treatment of the adynamic variety of ileus is much less satisfactory than the treatment of simple mechanical obstruction. In those cases in which the paralytic ileus is the result of an overstimulation of the splanchnic nerves, blocking of the splanchnic nerves, either by a splanchnic analgesia or spinal analgesia, is effective. Ochsner, Gage, and Cutting<sup>15</sup> have shown, in the experimental animal at least, that splanchnic analgesia is more efficacious than spinal analgesia in the treatment of adynamic ileus superimposed upon a mechanical ileus. They feel from this experimental evidence and also from their clinical experience that splanchnic analgesia is to be preferred to spinal analgesia in the treatment of this condition. It has, however, certain definite disadvantages in that it is technically more difficult to perform. If either splanchnic or spinal analgesia is to be employed in the treatment of adynamic ileus, it is imperative, as shown by Ochsner, Gage, and Cutting<sup>15</sup> that epinephrine, ephedrine, or atropine should not be used, because any one of these will nullify the action which the splanchnic block exerts on the paralyzed bowel.

The drug treatment in paralytic ileus has been more or less unsatisfactory. Ochsner, Gage, and Cutting<sup>16</sup> investigated all the various drugs which have been advocated in the treatment of ileus and which supposedly have a stimulating effect on the intestine. They found that with few exceptions most of the drugs which are employed at the present time are of no value, and many are distinctly harmful. The drugs investigated were pituitrin, physostigmine, peristaltin, pitocin, choline, acetylcholine and hypertonic sodium chloride solutions. The results obtained by the use of pituitrin were quite characteristic and with but few exceptions there was a decrease in the intestinal tone and peristaltic movement in animals, both normal and with intestinal obstruction. In the animals with intestinal obstruction, in no instance was there an increase in intestinal movement and in two thirds of them there was a definite decrease. Physostigmine, on the other hand, in all the normal animals, with one exception, and in two thirds of the animals with an adynamic ileus superimposed upon a mechanical obstruction, produced an increase in tone as well as an increase in the amplitude of the intestinal movement. The results obtained by the other drugs were incon-

stant and of no value. The intravenous injection of hypertonic sodium chloride solutions did, however, increase the intestinal tone and movement, the amount being much less than that obtained by splanchnic analgesia. Its use is not without danger, however, because of the increased coagulability of the blood.

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#### DISCUSSION

DR. WILLARD BARTLETT, JR., St. Louis: The authority with which Dr. Ochsner speaks on this subject is a reflection of the value of his own contributions to our knowledge of intestinal obstruction. His work is based on a wide knowledge of physiology and on a keen observation of pathologic physiology. There has been a slowly changing concept of the nature and treatment of intestinal obstruction in the past few years and this concept has always been altered in the light of physiology. Thus we have learned to estimate and to correct the severe imbalances of water, salt and nitrogen metabolism before proceeding with surgical interference. When I suggested the use of spinal anesthesia as a measure for differential diagnosis of dynamic and adynamic ileus and as a criterion for operation in certain cases, I only applied facts that had been discovered by others. The point I am trying to make thus far is that we are taking more time to fully estimate the physio-



logic status of a patient with intestinal obstruction instead of rushing him to the operating room upon making a diagnosis.

Carrying this view still farther, I want to venture the prediction that in the future a certain group of cases will not be considered as subjects for surgery at all. I limit this group sharply to those patients, chiefly in or past middle life, with a history of antecedent abdominal complaints, especially if they have been previously operated on; they have symptoms of obstruction low in the gut where, as Dr. Ochsner has pointed out, strangulation rarely occurs. They have ordinarily been through similar milder attacks and are really thrown from a stage of chronic incomplete obstruction into a stage of acute complete obstruction by gross indiscretion of diet or abuse of cathartics. In such cases the final factors in the production of complete obstruction are edema of the bowel and spasm. One must, you see, regard the intestine not as a stiff rubber hose which becomes plugged but as a tube whose lumen and walls are subject to wide variations in size due to its power to dilate and to contract under a variety of influences. With this view of the situation we should be able to get these patients back into their stage of chronic, incomplete obstruction by (1) restoration of salt, water and nitrogen reserves of the blood and tissues, and maintenance of caloric requirements by the continuous intravenous administration of saline solution, glucose solution and blood to fit the individual case; and (2) taking the entire burden off the alimentary tract through continuous siphonage of the stomach with the nasal tube, preferably keeping constant suction applied. In this way we may look for relaxation of spasm and disappearance of edema.

This is certainly what actually happens in those cases in which we do an enterostomy without touching the actual site of obstruction and in those cases where we find a hopeless mass of adhesions with multiple points of obstruction and after closing the abdomen without doing anything are surprised to have the patient recover on such supportive treatment as I have outlined. On no other basis can we explain these results. When such patients have been carried through the stage of acute complete obstruction a careful investigation should be undertaken to determine the site and nature of the obstruction and they should be prepared for whatever radical surgery is necessary to correct the underlying disease. Let me repeat, that I am limiting these remarks to one group of patients but that there is always time to take a careful history of the present and past history and to evaluate thoroughly the physiologic status of the patient before deciding on a course of action.

Dr. Ochsner's paper is a most thoughtful one and it is a privilege to have heard him.

DR. JABEZ N. JACKSON, Kansas City: Personally, I appreciate very much this excellent paper which Dr. Ochsner has given us. I do not know of anything that interests me more than the subject of intestinal obstruction. I agree with the Doctor in general, but one or two things I think should be corrected and one is that he might leave the impression that early operation, just as soon as the patient is seen and regardless of the condition, lowers the mortality. I agree with what Dr. Bartlett has said, that we should consider more carefully the physiologic condition of the patient when he arrives.

The first case of intestinal obstruction that I ever saved was one that had had the obstruction for over a week. His abdomen was extended, there was constant vomiting, his eyes were glassy, and he was practically moribund. I said that my experience had

been that if we operated the patient would die, so I suggested something else. We resorted to the lavage method—gastric lavage. It is amazing how much you can get from the duodenum by gastric lavage. It probably relieves the patient in two ways, (1) by relieving the intestinal distention, and (2) by releasing the toxins which according to most physiologists are of duodenal origin. We gave this patient lavage for three hours, administered normal saline solution, and in a few hours there was a flattening of the abdomen, cessation of vomiting—a very different picture, and in two days we thought there was no intestinal obstruction. As soon as the patient was permitted to have fluids by mouth however the symptoms recurred. The second time we took up gastric lavage and in two days operated. We found complete intestinal obstruction, and the patient recovered. I believe early operation is desirable, but I believe a few hours' delay in many instances will give you a knowledge of the general physiological condition. By gastric lavage and saline solution we converted what was an apparently hopeless case into a safe one.

Some believe in a jejunostomy but I think the value depends on the physiological condition of the patient when you operate. If you operate when the patient has peristalsis you will get some results; if you wait until the last stages of obstruction when there is complete paresis and there is no drainage you will get no benefit. I think we have improved our results by doing, in addition to the jejunostomy, a cecostomy, and with the Murphy drip getting a large amount of fluid into the ascending colon.

DR. THOMAS G. ORR, Kansas City: There are certain fundamental factors about the treatment of acute intestinal obstruction that we must remember. First, we must not lose sight of the importance of treating the patient early. In those cases we will get our lowest mortality. Second, the importance of dehydration and hypochloremia cannot be over-emphasized. Third, the relief of the mechanical obstruction must be accomplished before we can hope for a cure. One of the first symptoms in a patient with acute obstruction is vomiting, and the loss of liquid produced by this means causes dehydration. There is also a drop in the chlorides where vomiting has persisted for several hours. It appears to me that you cannot logically treat acute intestinal obstruction without supplying, as far as is possible, these substances that have been lost from the body by the disease. Nothing is more logical than to put back into the body those essential elements that have been lost. We know patients lose water and salt. Of what importance is salt? We know experimentally and clinically that you can reduce the blood chemistry to normal by supplying salt solution. We believe that salt has something to do with water distribution in the body. That, again, is a very important feature. However, the giving of hypertonic salt alone is not sufficient,—you must give water with it. Another factor of importance in connection with salt solution is its action on the tonicity of the gut. Salt will increase peristalsis. To discuss the question of how much salt would lead us too far afield. If a patient has been ill for several days and markedly dehydrated he should be given hypertonic salt solution in sufficient quantity to bring the chlorides back to normal within a few hours.

The value of enterostomy has been argued a great deal. Certainly you can do a high jejunostomy in an animal that may kill him as quickly as if you obstruct the gut; and if a jejunostomy is done with a wound that permits an abundant drainage of the upper intestinal tract to the outside the patient may

suffer from excessive loss of fluid and upper intestinal juices. There is one particular condition in which enterostomy is valuable. Sometimes when we operate for pelvic conditions or acute obstruction we get into difficulty by having marked paralytic ileus. A search for mechanical obstruction in the pelvis in such cases is likely to kill the patient, whereas if we simply drain the gut through a left rectus incision while peristalsis is still active, the gut function may be restored and the bowels begin to move without any further surgery. I think it is important to remember not to go searching about in the abdomen in postoperative cases for mechanical obstruction when an enterostomy will, in properly selected cases, not only relieve the obstruction but restore the lumen of the gut to normal.

DR. FRANK G. NIFONG, Columbia: I cannot refrain from expressing my appreciation to the officers of this Association for the delightful paper that our distinguished guest, Dr. Ochsner, has given us. It has taught us a great deal, and upset our apple cart in some ways. There is nothing to add except to illuminate one or two points he made about certain phases of ileus.

The most unfortunate people, I sometimes think, are those that have abdominal adhesions without any cause whatever. Years ago I operated on a beautiful young married woman who had nothing but an ovarian cyst but a few months later she had many adhesions that I had to relieve. Later the same thing happened—no infection but I had to do a resection. Later it happened again, but I did not want to go in there any more. I was desperate and had a hopeless feeling. Finally I did a thing that I teach everybody not to do, I gave her morphine, and after she relaxed and peristalsis stopped, to my surprise she got well. Since that time when she has been indiscreet in eating, possibly, the procedure is repeated and again there is relaxation, lessening of peristalsis and ultimate relief from obstruction.

The two types of ileus so beautifully displayed here are the ones we have to attend. Just now I have an old friend and associate, a medical man, in our hospital. He is recovering, but for eight or nine days we thought he would die. He had had first an acute gangrenous gallbladder. It was removed but he went on to a toxic state and what I suppose is adynamic ileus. He continued vomiting. We instituted the usual procedures, salines, feeding of glucose, continuous lavage of the stomach, but still it looked as if he were going to die. Finally an old country doctor said: "You had better give him morphine to relieve his hypertension." It seemed to be contraindicated. It was given and obviously contributed much to his relief. I have given pituitrin many times and have seen no result but as a last resort we gave him pituitrin and to our surprise and delight there was peristalsis and evacuation. That was repeated a number of times with the same result.

DR. B. L. MYERS, Kansas City: About ten years ago I concerned myself with a study of the rapidity of absorption in an obstructed loop of bowel. The loop was usually isolated in the duodenum or jejunum and a gastro-enterostomy was done so that the animal might have a patent gastro-intestinal tract. Just before closing the loop, 1 c.c. of phenolsulphonephthalein solution, such as used for kidney function test, was deposited in the obstructed bowel. The urine was checked as in renal function estimations and the result showed that the absorption from the isolated loops in time and amount was practically the same as when the dye is administered by mouth. This would certainly indicate that absorption in these cases is both early and extensive.

A few years ago I made a study of 69 cases of intestinal obstructions not due to malignant lesions. The amount of time lost between the occurrence of the obstruction and the liberation of the obstruction often determines whether the patient will live or die. The average duration of the obstruction before entering the hospital in patients who lived was 26½ hours, while it was 35½ days in patients who died.

Doctor Holden, of Portland, reported to the American College of Surgeons at its last Chicago meeting that his mortality rate was better in patients who came to him directly than in those referred to him by the family physician. The difference was evidently due to the extra loss of time. Sir William Taylor, of England, who has the lowest mortality rate I know of in intestinal obstruction (3.8 per cent), cared for his patients, as I understood, on a charity hospital service where the patients went directly to his service. These things remind us of Moynihan's observation that "A mortality of over 10 per cent is a mortality of delay."

I feel that these two points are worthy of consideration.

DR. ALTON OCHSNER, in closing: I am indeed grateful to all the discussers. I am sorry I left the impression that I would not advocate preparation of the patient. Of course I agree with Drs. Bartlett, Jackson, and Orr that these patients must be prepared preoperatively. I do not want to leave the impression that I advocate immediate operation on these patients. However, once they are prepared—and I think they can be prepared in a relatively short time—they are still ill and we can do harm by waiting too long because of further interference with the blood supply in the gut.

In regard to Dr. Nifong's experience, I might say that Plant, of Iowa, has recently shown in animals and Wangersteen in humans that morphine stimulated the gut.

Concerning the Doctor's experience with pituitrin, in 5 per cent of our animals we observed an increase in tone. In those cases in which we got an increase in tone it was primarily in the large gut and not in the small bowel where ileus is usually found.

In regard to the technic of splanchnic anesthesia, we advocate the technic of Kappis. Obviously the Braun technic would not be applicable. We advocate following the splanchnic analgesia with an enema because from our experimental results with splanchnic block we have found the greatest effect is on the small gut, and frequently we have been able to observe the fecal contents deposited in the large gut which after an enema would be evacuated from the large bowel.

In regard to auscultation of the abdomen, all are familiar with the peristaltic sound to be heard on auscultation of the abdomen in the case of mechanical ileus. This consists of a rumble which, as the condition progresses, changes to a tinkle, but in the presence of an adynamic ileus the abdomen is "ominously silent" (Deaver).

In regard to enterostomy, I believe if there is no movement in the gut, enterostomy, as such, will do little or no good. This is the type of case in which a splanchnic or spinal analgesia is indicated. As long as there is movement in the gut I do not think it makes any difference whether one does a high or low jejunostomy. After adynamic ileus has once occurred the type or location of the opening made into the bowel is immaterial as it will be of no avail unless the intestinal movement is reestablished. Increase in gut tone is more important than increased movement. In ileus it is important that peristalsis is accompanied by an increased intestinal tone, as the



intestinal contents are fluid and if there is no increase in tone the contents can pass proximally as well as distally. We have found that splanchnic block increases the tone of the intestinal musculature more efficiently than any other measure we have employed.

## DIAGNOSIS AND MANAGEMENT OF INJURIES TO THE CHEST\*

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Injuries of the thorax call for prompt diagnosis and efficient treatment. The management of thoracic injuries differs from that of injuries elsewhere only as it relates to injury of the vital organs and structures within the thorax. The immediate challenge is of course shock, hemorrhage and respiratory interference.

A review of the work in this field shows that important advances have been made. During the World War the large number of chest wounds furnished an incentive for study and opportunities for observation which had previously been lacking. We have learned that the chest cavity may be widely opened and explored just as the peritoneal cavity; that it is unnecessary to resort to special appliances for the maintenance of negative pressure; that one need not fear pneumothorax even in the presence of large openings; and that it is possible to grasp the lobes of the lung for operative procedure.

*Diagnosis.*—The presence of severe thoracic contusions is obvious but the extent of injuries to thoracic organs is not always readily determined. Careful physical examination, roentgenogram and fluoroscopic studies, and diagnostic puncture will, however, usually determine the condition present. In all thoracic cases the surgeon should work in conjunction with an internist, no matter how skilled the surgeon may be in the diagnosis of these conditions and in the selection of proper cases for operation.

The intimate relationship of the upper abdomen and its contents to the thorax is a condition that increases the difficulty in successfully gauging the extent of the damage in injuries of the chest.

Vale says that abdominal rigidity is often present in cases of chest injury as well as in cases of diaphragmatic pleurisy. He offers a simple differential diagnostic sign, i. e., when the lesion is intrathoracic the rigidity of the abdominal muscles momentarily relaxes at the end of expiration; when the lesion is intraperitoneal the rigidity is usually constant but

if intermittent is not regularly so as it is in chest conditions. This sign is best seen in traumatic chest conditions. Davis, in his group of cases, mentions and corroborates Vale's sign.

*Treatment.*—In contusions of the chest wall uncomplicated by serious intrathoracic injury, little in the way of treatment is required. Breathing and movement may be painful and will require sedatives and immobilization by strapping the chest with adhesive plaster.

Traumatic asphyxia does not ordinarily require any special treatment. If patient survives the chest injury, the discoloration in the skin and conjunctiva will disappear completely within a few days.

In penetrating and perforating wounds of the thorax no hard and fast rules can be laid down. If the wound in the chest wall is small and there is no sucking, the expectant method of treatment is usually followed. This is true of most of the cases seen in civil practice. However, there are many possibilities of mishap and the patient should be carefully watched.

Hemorrhage is the most common cause of death. The chest wall should be examined for arterial bleeding. The intercostal vessels are fairly inaccessible but can be easily compressed by passing a ligature completely around the rib. In case of large hemorrhage blood transfusion should be done. Intrathoracic hemorrhage is controlled by deferring aspiration for forty-eight hours. If bleeding comes from an injury to one of the large intrathoracic vessels, nothing can be done.

Pain, dyspnea, and cyanosis are relieved by aspirating blood.

If the lung is lacerated severely the wound should be sutured. The lung tissue is friable and therefore difficult to suture in the usual way. By taking two strips of muscle or fascia and laying these strips on either side of the lung wound it is possible to close the wound by having the suture go through the strips.

In chest surgery the choice of anesthetic is most important. The ordinary gas oxygen machine handled by a skilled anesthetist is sufficient to maintain necessary pressure within the lung to do chest surgery with a minimum of danger. Before a chest is closed the lung should be inflated by oxygen pressure to reduce the pneumothorax as much as possible.

### TYPES OF CHEST INJURIES

Injuries to the thorax may affect the parietes alone, both the parietes and viscera or, more infrequently, the viscera alone. Problems of

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diagnosis and treatment vary with the different types and with the individual patient.

*Injuries of the Thoracic Parietes Alone.*—Such injuries comprise about 10 per cent of chest wounds and consist of contusions, lacerations, and punctures, with or without simple or compound fractures of the ribs.

Contusion and bruising of the chest wall without serious injury to the contents of the thorax and without fracture of the bony wall of the chest are relatively simple injuries. The symptoms are those of contusion elsewhere; they soon disappear and recovery is without event. A thorough physical examination in these apparently mild cases should not be neglected for occasionally a fracture of ribs, a pneumothorax, a hemothorax or a massive emphysema is unexpectedly discovered. Fracture of ribs should always be suspected. Pain is an outstanding symptom and is increased by inspiration and by movement of the body. There is tenderness at the point of fracture but rarely any discoloration of the skin, depending upon whether fracture is by direct or indirect force. There are usually no intrathoracic symptoms unless fragments have punctured the pleura and lung or the injury causing the fracture was severe enough to cause trauma of structures other than the ribs. Fractures of the ribs rarely cause serious injury to the lungs. If fractures are multiple and there is undue separation of the fragments, injury to the lung and hemothorax may occur. Subcutaneous emphysema usually does not present a serious complication in injuries to the chest. Occasionally, however, air may be forced under the fascia planes and may envelop the entire body, resulting in death.

Cases which, following a crushing injury, present a remarkable blue-black discoloration of the face and neck are designated by the term traumatic asphyxia. Here the injury is probably chiefly to the mediastinal vessels. The characteristic lesion from which the condition derives its name is the discoloration of the face and neck. All the cases described in the literature exhibited to a marked degree a deep blue or bluish black discoloration of the face and neck, usually most marked about the lids, lips, and nose; less marked about the ears and neck. In addition to the discoloration there are usually marked swelling and edema of the tissues of the face, especially of the lids and lips. Extensive subconjunctival hemorrhages, usually bilateral, have been noted in practically every instance.

In rare cases compression of the chest may also give rise to retinal disturbances. From such types of injury Tietze in 1911 reported two cases, both of which showed the picture of the

disease after a severe compression of the abdomen or breast with rupture of the liver. The retinal change was observed sixteen hours after the accident. The case reported by Chou disclosed, besides the typical picture of traumatic asphyxia, numerous grayish-white opacities of various sizes and shapes in the neighborhood of the disc and in the macular regions with a small retinal hemorrhage. All the eye changes disappeared in the course of three weeks. As the author was primarily interested in the ophthalmoscopic aspects of the condition, no detail is given of the diagnosis and treatment of the thoracic injury. Ehlers reports a case of atrophy of the optic nerve after compression of the thorax. There is no criticism or even discussion of the surgical management or other therapy at the time of injury.

The most serious injury to the chest wall is the "stove in" chest. In this injury many ribs are fractured and fragments are driven in the pleura.

*Injuries Involving Both Parietes and Viscera.*—A consideration of injuries to the thoracic contents may be almost restricted to wounds of the lung. Cardiac, intramediastinal and vascular injuries seldom come to operation. Foreign bodies within the pericardium or mediastinum are obviously dangerous. Injuries to the blood vessels and thoracic duct are recorded. The necessity for treatment as early as is possible is too obvious to require discussion.

Traumatic pneumothorax may occur and may be open or closed and is present in all wounds of the thorax in which the pleura is opened. Considerable dispute has arisen as to just what occurs when an open pneumothorax is made but it is generally considered that the mediastinum has a to and fro movement or fluttering and therefore the disturbance of intrathoracic pressure is not confined to one lung but involves both.

The presence or absence of pneumothorax following a chest injury is of much importance in the treatment of thoracic injuries. It is quite obvious that a so-called "sucking wound" of the chest should be closed as soon as possible. This type of injury is most distressing. Patients suffering from such injuries present a tragic sight; they are cyanotic with marked dyspnea; blood and air are alternately sucked in and expelled by respiratory efforts; the lungs are collapsed and the patient is in profound shock.

Bettman and Binswanger report a stab wound of the chest and make the following comment: "This case emphasizes several of the underlying principles of chest surgery. First, an open pneumothorax is usually at-



tended by grave and alarming symptoms. These symptoms are in part controlled by changing the open pneumothorax into a closed pneumothorax. Any damp piece of cloth may be used in emergency to close the wound, but a bit of rubber dam is preferable because of the valve action which ensues. Operations requiring large opening of the chest cavity are best performed under pressure anesthesia. The ordinary gas machine as commonly used in hospitals is very satisfactory. After closure of the chest the lung must be reexpanded to overcome the pneumothorax. Furthermore, drainage should be instituted because in the majority of cases an effusion into the chest cavity follows trauma to the pleura. For these reasons it is wise to insert a self-retaining catheter through a stab wound in the tenth interspace in the scapular line and leave the end of the catheter under a fluid level. The negative pressure in the chest will never be sufficient to support a column of water of more than six or seven centimeters. The catheter will thus act as a means of egress for the air and for any fluid which may accumulate."

Hemorrhage following injuries of the chest varies within wide limits as to the amount of blood lost, the avenues of escape and the time and duration of bleeding. There may be hemoptysis, open hemorrhage through a wound in the thoracic wall, etc. Hemoptysis is a fairly common symptom of chest injury but the quantity of blood coughed up bears no relationship to the gravity of the injury and is usually small in amount.

Traumatic hemothorax is a very common condition complicating chest injuries. The blood may reach the pleura from the chest wall because of injury to the intercostal and internal mammary vessels and may be due to injury of the lung.

Immediately following the injury and while the bleeding is still active the patient exhibits the symptoms of hemorrhage and shock,—pallor, rapid small pulse, falling blood pressure, weakness and anxiety. The bleeding is generally fairly rapid and rarely continues after the first twenty-four hours. Aspiration within this period is unwise unless pressure symptoms are urgent. In a small hemothorax the blood may be completely absorbed in a few weeks while in a large hemothorax absorption is very slow. There is some controversy as to when it is safe to aspirate blood from the chest but it is generally agreed that emptying the pleura in the first twenty-four hours may result in recurrent bleeding. If pressure symptoms become alarming, moderate amounts of blood should be aspirated even this early. The most

serious complication of neglected hemothorax is infection which may reach the blood through the chest wall or from the lung.

Injuries to the lung encountered in civil practice are mostly due to gunshot wounds and range from a minimum of tissue destruction and little bleeding to large, irregular, lacerated bleeding wounds surrounded by a wide zone of hemorrhagic infiltration.

Massive collapse of the lungs may result from an injury to the chest wall without penetration or it may be due to the entrance of a missile into the pleural cavity or lung. Massive collapse is a state of atelectasis in which a part or all of the lung is devoid of air. The absence of breath sounds on the affected side, the dullness on percussion and the dyspnea from which the patient suffers often lead to a diagnosis of hemothorax and needless attempts at aspiration are made. Moreover, the emphysema and hyperresonance of the opposite side may lead one to suspect pneumothorax and attempts to aspirate air will further complicate the condition. The collapse may occur on the side opposite to the injury and this may still further obscure the diagnosis. The symptoms are characteristic and these coupled with roentgenogram and physical examination should enable one to make a diagnosis. The symptoms are intense dyspnea of sudden onset, cyanosis, rapid respiration and pulse, and an absence of fever. The physical examination reveals an absence of breath sounds, flatness of the affected lung, displacement of the heart to the affected side, and hyperresonance of the contralateral lung. The roentgenogram shows the lung retracted and increased in density, the heart and mediastinum pulled toward the collapsed lung, and a marked obliquity of the ribs on the affected side. The condition is rarely fatal and requires little treatment. Spontaneous adjustment takes place in twenty-four to forty-eight hours.

*Injuries Involving Viscera Alone.*—These injuries are limited to pulmonary collapse and intrapulmonary hemorrhage with or without a complicating hemothorax. The treatment by conservative or radical methods is determined by the severity of the injury.

*Prognosis.*—The prognosis in the serious injuries is grave. Death is usually due to shock or to serious pulmonary complications.

*Complications.*—Empyema and other serious infections result in less than 2 per cent of all cases. Abscess of the lung secondary to trauma is rare. It may occur as a late complication in the neighborhood of missiles that are left in the lung. Gangrene of the lung is very uncommon. Pneumonia following trauma seldom occurs.

The signs of hemothorax are sometimes mistaken for consolidation of the lung and roentgenogram and physical findings of hemorrhagic infiltration of the lung closely resemble those of pneumonia.

The theory of a thoracic trauma producing pulmonary tuberculosis has been abandoned but it is assumed by some that trauma may activate a latent tuberculosis. From studies of Sergeant, Price, Pilod and numerous reports in the French and other foreign medical literature, one is convinced of the rareness of the condition and uncertainty of these reports.

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## DIAGNOSIS AND MANAGEMENT OF INJURIES TO THE ABDOMEN\*

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The relative frequency of abdominal injuries today as compared to the number of cases coming under observation in the past is in keeping with the mechanical trend and speed mania of modern civilization. The accuracy of diagnosis and prompt efficient treatment are indeed extremely important. A clear knowledge of

the extent of the trauma is often impossible to obtain by ordinary clinical methods. We are inclined to be somewhat conservative and reserved in our expressions and opinions due to the habits formed in handling the ordinary run of surgical conditions. We may be not inclined to realize how entirely different is the proper management of such abdominal injuries.

The history of an abdominal injury is important and has a decided bearing on an accurate diagnosis. For practical purposes we group the manner by which an abdomen can be injured under two main headings, (1) the penetrating and (2) the nonpenetrating.

The penetrating wounds are gunshot, stab, flying pieces of steel and small missiles striking the abdominal wall with considerable velocity and force.

The nonpenetrating type can be divided into those of general violence and those exerting localized violence. Of the general type we have such injuries as a vehicle passing over the abdomen, a fall from a height, compression between two objects, or being crushed by a falling mass. The injuries causing localized violence are, a kick by an animal, blows with a fist, etc. There are other classes in which the injury sustained can be more or less spontaneous,—muscle pull and severe straining such as occur in reaching, or a forced bending of the back, sudden increase in intra-abdominal pressure, and twisting the body in various ways.

#### DIAGNOSIS

The diagnosis of penetrating abdominal wounds is usually not difficult because there is definite external evidence of injury. The location of the external lesion together with a fairly good knowledge of the manner of infliction gives us some insight as to the type of subcutaneous injury suffered. It is well to remember, also, that a visible wound of entrance in the abdominal wall itself is not an absolutely necessary accompaniment of a wound to a viscus. The external wound may lie in the thorax, the pelvis, the buttock or the scrotum. In such instances, in the absence of a wound of exit, the great difficulty of deciding whether or not the intestines have been injured is manifest. The general symptomatology immediately following the infliction of a wound of this type may not necessarily be alarming, but in some cases the symptoms are so definitely characteristic that no doubt can exist and the need for immediate surgical intervention is perfectly evident. Blood flowing freely and persistently from a wound, perhaps mixed with fecal matter, or bile, or urine, and the protruding omentum or loop of intestine, are self-explanatory

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and sufficient evidence to proceed without further delay. There are rarely any pathognomonic signs.

The diagnosis of nonpenetrating abdominal injuries, on the other hand, is often considerably complicated. These injuries must be considered serious ones even though the character of the external violence was such as to leave no visible evidence of injury on the surface. We cannot make an accurate diagnosis by conservative methods, but we can gain important information by a very thorough consideration of the signs and symptoms presented. The knowledge of certain facts will aid materially in the type of exploration desirable.

Practically all abdominal organs are subject to injury from external violence, whether it be penetrating or nonpenetrating, local or diffuse. However, the organs most subject to traumatic injury may roughly be classified into two main groups, (1) those of a solid parenchymatous nature which are more fixed in position, and (2) those which are hollow and relatively freely movable within the abdominal cavity. The solid organs that are of interest are the liver, kidneys, spleen, pancreas and diaphragm. The hollow organs include the stomach, small and large intestines, the urinary bladder and the blood vessels.

The diagnosis depends on the general and local symptoms as well as on the important physical findings. Shock is present and may be severe. Nausea and vomiting almost always occur. Distention is present when there has been an escape of gas into the peritoneal cavity and it may reach enormous proportions. Rigidity develops rapidly with the advent of hemorrhage or peritonitis. The presence of rigidity or muscle spasm immediately following injury in this region is significant of hemorrhage. This may be more pronounced where there has been a rent in the mesentery. When this condition occurs the signs of hemorrhage are added to those of shock. The developing peritonitis following injury is quite significant. There will be an increase in the leukocyte count, whereas in hemorrhage the leukocyte count is high almost from the beginning.

Peritonitis is usually ushered in with fever, nausea and vomiting and symptoms of ileus soon dominate the picture.

To differentiate abdominal wall injury without visceral injury from abdominal wall injury with an associated visceral injury is exceedingly difficult. Many symptoms are common to both. In each the patient is shocked and complains of pain. Nausea and vomiting are common to both. Distention comes on rapidly

in cases of contusion and rigidity may be marked. Both of these symptoms seem to be due to irritation of the nerve supply. The pulse is rapid immediately after the accident but becomes slower when the peritoneum is not involved, while a steady increase in the rate with progression of tenderness, rigidity and muscle spasm are characteristic of peritonitis from the ruptured bowel. Retroperitoneal hemorrhage from injury almost always is followed by rigidity and muscle spasm of the abdominal wall with paralytic ileus. A plain roentgenogram will show the distended colon in cases of meteorism as distinguished from the pneumoperitoneum following rupture of the intestine.

In injuries by blunt objects the small intestine is the most frequently affected of the hollow viscera. While the movability of the mesentery protects it somewhat against injury yet this very mesentery, carrying as it does the vascular supply of the intestines, is also an added element of danger. The upper jejunum is the portion most frequently affected but the ileum is nearly as important. The history of how the injury occurred is of value and an estimation of the nature and the direction of the force is also valuable. The necessity of distinguishing between the simple abdominal wall contusions and more complicated visceral injury is apparent. Pain, shock, tenderness, muscle spasm, dullness, vomiting, distention and external signs of injury are common to both classes.

There are certain necessary routine procedures to be followed and with these in mind we may be able to arrive at a fairly accurate conclusion. I believe the shock in simple abdominal wall injury is very amenable to treatment. This is substantiated by observations on the blood pressure reading. The persistence of the blood pressure below 80 mm. usually signifies a severe degree of shock. With the use of ephedrine hydrochloride we have a therapeutic test that has been at times the deciding factor in a differential diagnosis. The height of blood pressure gained following the use of ephedrine in simple abdominal injuries is lasting, whereas the effect in severe shock accompanied by moderate hemorrhage is transitory. In cases of extreme bleeding ephedrine as well as other therapeutic measures are useless and dangerous. I believe the pulse rate is important, a steadily rising pulse after the patient has had a chance to become quieted indicating great danger. The continuation of muscle rigidity is significant and must be distinguished from ordinary muscle spasm. All these points are of great value but they are not to be inter-

puted as absolute. Their value is only relative. The only certain means of differentiating between a simple contusion and one complicated by intestinal injury is by exploratory laparotomy. This is the safe and sure way to an accurate diagnosis and I wish to emphasize the fact that many an exploratory operation for diagnostic purposes in abdominal injuries has been instrumental in saving lives.

1. *Injuries to the Stomach.*—The stomach is usually situated high in the left hypochondriac region and is afforded fair protection by the lower part of the thoracic cage. Rupture of the stomach is rather infrequent compared to the other abdominal viscera. It has considerable latitude of mobility, is strong walled and is probably comparatively empty a greater portion of the time. Injuries of the stomach may arise in conjunction with those involving the lower chest wall, as a broken fragment of rib penetrating through the diaphragm and into the lumen of the stomach.

Rupture of the stomach is usually followed by severe shock which, if persistent, must convince us at once that severe hemorrhage is present. The pain is usually located near the umbilicus and more or less localized to that area.

The amount of vomiting is dependent upon the size of the tear in the gastric wall. When the perforation is small a large quantity of bloody vomitus is seen. When a larger opening has been inflicted the contents of the stomach escape into the abdominal cavity along with the hemorrhage. The percussion note is dull throughout the entire periphery of the abdomen. Tympany may only be elicited above the umbilical line. Tenderness is present throughout the entire abdomen but is most intense in the epigastric region. If considerable time has elapsed, the signs and symptoms of general peritonitis are added to those already mentioned, namely, chills, fever, increased rigidity, leukocytosis and the obstructive phenomena characteristic of ileus.

2. *Injuries to the Colon.*—Although contusion or penetrating wounds are much more likely to damage the small bowel than the colon, rupture of the colon may be into the peritoneal cavity or into the areolar tissue behind the fixed portions. That part of the colon most frequently injured is the sigmoid because of its fixed position against the hollow of the sacrum. Other ruptures of the colon may be brought about by the even careful use of the sigmoidoscope and bougies.

3. *Injuries to the Urinary Bladder.*—These cases are relatively infrequent because under ordinary conditions the pelvis protects the

urinary bladder from violence. A distended or full bladder is, however, often ruptured when sufficient force is applied to the anterior abdominal wall. Rupture of the urinary bladder is more frequently associated with a fractured pelvis. The diagnosis, therefore, is oftentimes overlooked and some time will usually have passed before the characteristic symptoms appear. Blood stained urine and, if the injury is situated near the vesical neck, free bleeding are seen. Edema of the scrotum and external genitalia will usually appear in a few hours. Evidence of extravasation of urine into the soft tissues can usually be seen; it may extend down into the thigh or up into the anterior abdominal wall. The general symptoms of shock and hemorrhage may not be pronounced. The injury may, on the other hand, be discovered only after considerable retroperitoneal bleeding has occurred; it is because of this fact that cases of injured pelves often suffer from delayed shock.

#### INJURIES OF THE SOLID ABDOMINAL VISCERA

*Liver.*—Of all the abdominal viscera the liver is most commonly ruptured by a nonpenetrating blunt force because of its closely knit structure, its tightly drawn capsule, its limited range of mobility and its enormous size. The liver is easily affected by any force applied to the right hypochondrium. There are many types of rupture of the liver but for practical purposes we can divide the injury into two classes, (1) those in which the rupture involves the capsule and are known as true ruptures, and (2) the intracapsular type in which the capsule remains intact. In the first type it is evident that there will be intraperitoneal hemorrhage; in the second type the hemorrhage is usually concealed. The differential diagnosis is extremely hard to make clinically, the shock accompanying rupture of the liver often being pronounced because the hemorrhage is profuse. Large sagittal ruptures are rapidly fatal. The abdominal signs are characteristic, rigidity usually being very marked and confined to the area involved. There is acute tenderness and palpation is rendered extremely difficult. General abdominal rigidity is present when hemorrhage is profuse or active. Pain may be referred to the back or over the right hypochondrium. In capsular ruptures the pain is more intense and the amount of tenderness often less. It is possible at times to palpate a marked enlargement of the liver below the costal margin.

*Kidneys.*—The kidneys are rarely injured from behind because of the thickness of the muscles and the spinal column. The extent of



injury that can be suffered by the kidney is quite variable; there may be injury to the fatty capsule and fibrous capsule without injury to the kidney substance, or contusion of the kidney substance with hemorrhage. There may be fissures, simple or multiple, in the kidney substance. Again, the kidney may be completely pulpified; or we may have injuries of the kidney accompanied by rupture of the renal vessels, rupture of the ureter, or tearing away the vessels and the renal pelvis from the kidney itself. The symptoms are both general and local. Shock is due to disturbance of the sympathetic and the abdominal plexus rather than to injury of the kidney itself. Symptoms of hemorrhage may not come on for hours after the injury and attention may be first called to it by hematuria, nausea and vomiting. Pain in the kidney itself may radiate down the ureter into the bladder area, external genitalia and inner surface of the thigh. This pain is due to pressure on the capsule and nerves of the kidney and the sensory nerves after their exit from the spinal cord. The external signs are abrasions, ecchymosis and perhaps a fractured rib. A tumor mass is present if the hemorrhage is rapid. Hematuria, the most characteristic sign, may be absent in several groups of cases, e. g., those involving hemorrhage about the fatty capsule or if a ureter is torn across or plugged with a small clot. A plugged ureter may cause renal colic. If blood pours into the bladder freely bladder pain is intense and there is a constant desire to urinate. Kidney injuries also show marked evidence of shock and delay in the diagnosis of these lesions is hazardous. Because kidney injuries usually are sustained from violence directed from the front we are apt to forget that this injury may be accompanied by damage to another organ at the same time. I refer to injuries of the spleen when the left kidney is involved and of the liver if the violence is directed on the right side of the abdomen.

*Spleen.*—The spleen is next in frequency as the organ injured due to subcutaneous injury. It is ruptured only by a relatively severe trauma. It is often lacerated by the broken ends of fractured ribs which penetrate the diaphragm. The diagnosis of this injury is attended with some difficulty. It is a deeply set organ and its injury requires considerable trauma. The history of the cause and direction of the force is important. There is immediate shock and because of its vascularity hemorrhage is profuse. These symptoms usually predominate. Pain is somewhat limited to the left hypochondriac area but it is often referred to the back and upper left chest in front. The

excursions of the left chest are limited and the patient will often complain of inability to take a deep breath. The progression of each symptom is usually very rapid. The need of immediate attention is readily seen.

*Pancreas.*—The pancreas is so situated as to be well protected yet injury of this organ is not uncommon. Complete rupture is usually followed by death from shock and hemorrhage. Practically the only way in which the pancreas can be ruptured is by violence that directly compresses the lower portion against the body of the second lumbar vertebra. There is pain over the left lumbar region and in the left upper quadrant. The lesser injuries are sometimes overlooked, and until the progress of the attack of the digestive elements on the peritoneum and surrounding structures the symptoms of its rupture are not evident. In this case local or general peritoneal irritation is present. We must not underestimate the importance of trauma of the abdomen. A careful study of the signs and symptoms in each case is important and greatly helps in directing our course of action.

#### MANAGEMENT OF ABDOMINAL INJURIES

Preliminary treatment in cases of abdominal injury is dependent upon the degree of shock and the amount of hemorrhage evident at the time of examination. If a patient has suffered a penetrating wound or if there is evidence of serious intra-abdominal injury from nonpenetrating violence and the patient is seemingly in a fair condition, operate as soon as possible.

Some of these patients, however, are in marked shock; so marked that an added operation may prove fatal; such a degree of shock is a contraindication for immediate operation but may not prevent an early operation. If there is reasonable evidence that hemorrhage is extensive it is imperative that the operation be undertaken as soon as possible. These patients will not react to stimulants except those directed mainly at replacing the volume of blood lost.

The difficulty of distinguishing between the symptoms of shock and hemorrhage is often embarrassing. There are no hard and fast rules that will serve us in making this distinction. Only sound surgical judgment and wide surgical experience can be depended upon.

Shock is to be treated in the usual way, by application of external heat, stimulants, particularly those directed to effect an elevation in blood pressure. Elevation of the foot of the bed to insure better cerebral circulation is important. The judicious use of morphine, intravenous solutions of glucose or saline and transfusion of whole blood must not be over-

looked. Fluid intake by mouth should be restricted, and where there is reason to suspect an injury to the intestinal tract should be prohibited. It is imperative, however, that fluids be used freely, the intravenous route being perhaps the most satisfactory method of administration. There are times when the condition of the veins is such that this method is practically impossible.

In hemorrhage the frequent administration of small amounts of fluids (500 c.c.) at a time is less dangerous in exciting bleeding from the torn vessels. Hypodermoclysis is advantageous but this route is considerably slower than the intravenous method. (Glucose isotonic solution can be used but should be in the proper percentage, namely 4.7 per cent.) Saline (isotonic) is much more rapidly absorbed by the subcutaneous tissues and is the solution of choice. Ringer's solution, Fisher's solution and others prepared with perhaps a more buffered salt content can also be used. The addition of novocaine in concentrations of 1/16 per cent to the solution used subcutaneously renders this route less painful and lessens the possibility of an added amount of shock.

Gastric lavage should be done if vomiting is persistent. Antitetanic serum in doses of 1500 units should be given, particularly in cases of penetrating wounds. The use of hemostatic serum is practiced quite extensively. Its value is questionable. The best hemostat is the transfusion of whole blood. This may be administered before, during or immediately following the operation.

Once it is decided that an operation is necessary no delay should be permitted in the administration of incidental therapeutic measures. The patient is brought to the operating room and placed at once upon the operating table, the pulse rate and blood pressure being checked frequently. The body temperature must be maintained as nearly normal as possible at all times.

*Anesthetic.*—Ether is preferred in most cases to nitrous oxide or ethylene. Ether affords more complete relaxation and therefore lessens the degree of traumatism during the operation. Where the respiratory rate is greatly diminished and shallow I believe nitrous oxide or ethylene is preferable. They have the advantage of cutting down the range and degree of anesthesia and there is a better chance of administering such stimulants as oxygen and carbon dioxide. An etherized patient reacts to these stimulating agents slowly. The anesthetic should be administered by an expert. Pitching and vomiting should never be

permitted. They make the operation more difficult, increase the amount of intra-abdominal hemorrhage, stimulate the pouring out of intestinal contents and mean incomplete anesthesia and predisposition to or aggravation of shock.

The incision must be made as nearly opposite the point of suspected subcutaneous injury as possible. Where the operation is wholly exploratory the midline incision is preferable and must be placed high in order to be accessible to all the intra-abdominal organs. Those situated in the upper abdomen are more fixed in position and, besides, it is more practical to enlarge the lower angle than the upper part of the incision. Muscles must be sacrificed if necessary to permit speedy and better access to the injured organ. It is better to repair a post-operative hernia on a living patient than to perform an autopsy on one dead of hemorrhage or shock. Enlarge the incision where indicated and try to prevent retraction as much as possible.

The exploration must be done in a systematic manner. Inspection must be direct wherever possible, palpation is often deceiving. Try to localize the source of hemorrhage as speedily as possible, apply ligature and clamps or compresses and then institute search for other pathology.

The intestinal tract should be examined in its entirety in cases of gunshot or stab wounds. Begin at any point but mark this spot by some means, catgut, tape, or by any notable sign in the wall of the bowel or its mesentery, carry the inspection distally as much as possible in order to avoid massaging the contents into the stomach and thereby causing regurgitation. Sponge away carefully any trace of blood and investigate the source of any blood present. If clamp and ligature are impossible tightly placed packing should be used.

*Intestinal Injuries.*—Closure of perforations by purse string sutures of catgut, linen or silk is preferred to resection. It is safer and lessens the degree of shock. Be cautious not to suture widely a rent in the mesentery; the circulation of that section of bowel may be impaired. Denuded areas of intestines are to be covered with omentum. The omentum may also be used as a hemostat. If the injury at the mesenteric border extends more than one inch with extensive injury to the intestinal wall resection must be done. Each surgeon should use the method that is best in his hands. In mesenteric injuries the lateral method of anastomosis has obvious advantages. In very desperate cases the traumatized portion may be



excised and the open ends of the intestines be placed in the abdominal wound pending a more propitious time for further operation.

In liver injuries careful packing is the method of choice; readily accessible blood vessels if seen should be clamped and ligated. Suturing of the liver is uncertain and extremely difficult; the omentum may be used as a natural tampon. It may be practical to suture the ruptured portion separately to some ligamentous attachment or perhaps to ligate a portion of one lobe by means of heavy ligature. Ordinary gauze tape may be used if necessary. With careful packing much time is saved thereby giving the patient a better chance for recovery.

Some injuries to the spleen may require only suturing. These cases are rare because the injury is usually quite extensive. In other cases well placed packing may suffice. Splenectomy is the only safe and sure method of dealing with severe hemorrhage from the spleen.

Injuries to the pancreas as a rule are also accompanied by severe bleeding but deep suturing may be sufficient to repair the lacerations. Suture or ligature of the duct should be attempted if it is torn. Resection of the tail of the pancreas may be necessary where the organ is seriously damaged.

The treatment of hemorrhage from the kidneys depends again on the type of injury sustained. Ligation of the hilum may be required in severe hemorrhage. The kidney may even be removed if severely injured and the patient's condition justifies the time needed for operating.

Small lacerations should be sutured. If the diagnosis of bleeding from the kidney is that of retroperitoneal hemorrhage the operation should be done from the back; if discovered during the course of an exploratory operation it should be dealt with by the transperitoneal route.

Injuries of the bladder rarely need surgical intervention unless the organ is ruptured. In that case the lacerations must be closed and drainage instituted.

If the injury is to a parenchymatous organ, such as the spleen, kidneys or liver, and all bleeding has been controlled, the abdomen may be closed without drains after the removal of clots. Where the intestine has been injured, no matter how small the perforation may be, drainage should be instituted. All cases operated on after twenty-four hours should be drained. When packing or a tampon is necessary to control hemorrhage a rubber dam or cigarette drain should also be included in the same area. The drains must be placed in the most dependent part, such as kidney fossae, culdesac, pelvic fossae and occasionally the lesser omental sac through the foramen of Winslow.

In the postoperative care three points are of importance: Absolute quiet and relief of pain, stimulation, and the administration of fluids. Morphine is by all means the narcotic of choice, its dosage to be judged by its effect on the patient and the intensity of the pain suffered. Atropine may be combined with morphine in 1/100 or 1/150 gr. doses if desired. (Atropine is particularly useful in cases where there is respiratory difficulty due to an accumulation of mucus.) Stimulants such as caffeine, sodium benzoate in two grain doses, ephedrine sulphate and digitalis are useful in impending cardiac distress and evident circulatory disturbance. They are also valuable in combating shock, but position and heat to me seem of greater value.

Fluids are to be given freely, by the intravenous route where speedy results are desired. Blood transfusion in amounts of 500 c.c. each should be used to combat residual symptoms of blood loss. It will naturally shorten the period of convalescence. Where there is no injury to the lower intestinal tract and pelvic organs proctoclysis is preferred to combat persistent nausea and vomiting. Liquids are prohibited by mouth until the nausea has subsided; then they are given in small amounts.

Attention must be given to the bladder and catheterization when necessary should be done periodically. Immediate postoperative lavage of the stomach is another method which is occasionally warranted, though the incident of vomiting is certainly not sufficient to justify its being used as a routine measure.

Postoperative treatment in general is the same as that following any surgical operation with the addition of carefully regulated body temperature, abundant supply of fluids and proper position to insure adequate drainage. Fowler's position must be assumed immediately following the cessation of symptoms referable to shock and is advantageous in nearly all cases of even suspected contamination of the peritoneal cavity. A great deal can be accomplished by proper postoperative care. The surgeon must be ready to deal with complications as they arise. Each case is an individual study and must be handled as such. There is no routine method applicable to all cases. The personal equation enters here as it does in nearly all cases that require surgical treatment.

#### CONCLUSIONS

1. The diagnosis of abdominal injuries requires a thorough analysis of the symptoms presented, a careful history of how the injury was sustained, a rigid physical examination and such laboratory tests as may be obtained without sacrifice of time.

2. A differential diagnosis between simple abdominal wall contusions and abdominal in-

juries with visceral complications cannot in the majority of cases be made with certainty. If there is the least semblance of doubt an exploratory laparotomy is warranted. The condition found at operation will determine the course to be pursued.

3. When there is persistence of a rapid pulse, muscular rigidity even without visible evidence of hemorrhage, and when the patient does not react to the ordinary treatment of shock, the possibility of severe intra-abdominal injury must be considered; exploratory surgical interference is imperative.

While the treatment of severe shock is conservative, treating hemorrhage is necessarily radical and immediate. It is frequently impossible to distinguish between the two without delays which may jeopardize the life of the patient, therefore prompt decision is absolutely necessary. If in doubt and the patient is not moribund, operate immediately. It would be better to operate on a suspected abdomen at once and find it uninjured than to have the operative procedure made more dangerous by delay.

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#### DISCUSSION

DR. WILLIAM T. COUGHLIN, St. Louis: I remember very well, and so do some of you, when we were told that the sooner we operated on patients who had serious brain injury the better for the patient. And I have seen operations made in such haste that while one surgeon worked on one side another worked on the other side doing a subtemporal decompression. That was as far back as 1909, 1910 and 1911. The older men looked rather askance at the procedure and their skepticism was justified later because we soon learned that in case of injuries of the head we should not do much right away, barring cases of hemorrhage from the meningeal artery—I do not mean that kind of in-

jury. But we soon learned that in the injuries where it seemed that the patient would die if something were not done right away, the patient always died if we immediately opened his head. So I feel that the patient who is apparently crying aloud for intervention is really the one to be let alone at the time. Someone has said, and I think with great wisdom, that "head injury is never so serious as to be considered hopeless, nor so slight as to be considered trivial," and it has become traditional that the patients who at first we think will die, if let alone for a while will in most cases recover.

The use of glucose or a strong salt solution has hailed with delight because we thought here we had a sovereign and effectual remedy against edema of the brain. It does good, I am sure, in quite a number of cases, but if you will look around in the institutions with which you are connected you will find the mortality in head injuries still quite high.

The use of purgatives known to our fathers is certainly a method of therapy that I think very highly of. I think there is nothing that quite compares with the use of magnesium sulphate for these patients to ward off edema of the brain. That has been used by some as an excuse to refrain from operating altogether, but I believe that whenever the patient shows focal signs, as soon as possible that area should be uncovered. I do not believe very much benefit is ever derived from the so-called decompression operation except when the decompression occurs over a point to which attention is called by the symptoms.

With regard to chest injury, if I should be so unfortunate as to have a chest injury without an open wound or with an open wound, and if blood is demonstrated within my chest, I wish that someone would use the method instituted by Mozingo for the treatment of empyema, where he puts in a catheter and irrigates with Dakin's solution to get rid of the pus.

This method is of the greatest use in hemothorax and I always give every case of empyema, particularly acute empyema, the benefit of a trial of it. It cuts rib resection practice about sixty per cent or more.

DR. R. A. WOOLSEY, St. Louis: I want to add one word to what Dr. Coughlin has said about trauma to the brain. Before we had the roentgen ray the idea was to operate on a fractured skull when in doubt. I have not opened a skull for ten years, except in one instance to relieve pressure from a depressed fracture. The rule should be never operate rather than always operate. If there is injury to the brain, the most important thing we can do is to keep the patient absolutely quiet in bed and not allow him to get up for quite a long period. If you have enough cerebral disturbance to make the patient unconscious for any length of time, regardless of anything else the patient should be kept in bed. Anybody who has had an injury to the brain sufficient to produce coma of any length should be kept in bed three weeks, regardless of how he feels or how badly he wants to get up. I think that is the real secret of the successful treatment of cerebral injury—absolute quiet and rest in bed until you get rid of the edema.

One word about injury to the abdomen. If you have shock you probably have rupture of the wall of a hollow organ, and if you have rupture you need operation. The quicker you do it the better off you are. The Doctor said if you have very acute shock you should not operate at once, but operate early. Later on he said in discussing the anesthetic that spinal anesthesia should not be used because, for one reason, you could not get to it in time. You do



not have to hurry unless the shock is pronounced, and if it is pronounced and you follow his rule not to hurry, you have plenty of time to use spinal anesthesia. But when you know you have a rupture of some internal viscera, or some hollow organ of the abdomen, if you are using spinal anesthesia you can have the patient properly anesthetized as soon as you get your hands properly fixed to get into the operation. If you use spinal anesthesia you should be ready if you have a hemorrhage to give intravenous glucose or saline. You can bring the patient out from shock while you are operating instead of making the shock worse by giving inhalation anesthesia.

DR. HUDSON TALBOTT, St. Louis: I regret having arrived only in time to hear the last paper, therefore I shall confine my remarks to that paper.

Dr. Hyland covered the subject very well and I rise to emphasize some things he said, especially, as Dr. Woolsey has just mentioned, early operation, which in my judgment in practically every case should be done as quickly as the diagnosis can be made.

The anesthetic should be spinal. It perhaps takes no longer than ether, a little longer than gas, but it certainly obviates shock and vomiting which are so disastrous in abdominal injuries, especially injuries to the hollow organs.

Speaking of thorough investigation of the intestines, surely he means where there is no question about intestinal injury. But we sometimes have an abdominal injury, such as gunshot wound, that we feel sure has not injured the intestine and naturally do not search there because of producing surgical shock. I recall a case of gunshot wound of the abdomen that I concluded had injured the stomach if any viscera were injured. We found the bullet in the muscles back of the stomach although the debris was in the lesser peritoneal cavity. The cavity was cleaned and drained and the patient made a beautiful recovery. I mention this because an injury with debris in the lesser peritoneal cavity is pretty serious and recovery doubtful. We used a Penrose drain underneath the transverse colon and perforating the mesentery. Then the patient was placed on his face. I wish to emphasize that point, that in abdominal operations where you have occasion to use a drain and you believe there is infection, even if there is no pus, the patient should be placed on his face. If you have a very bad case of infection, an abscess or peritonitis, that is all the more reason for placing the patient on his abdomen. You must keep him there to drain the abdomen properly. You have seen cases with a perfect well of pus trying to get out by the gauze or plain rubber drain that did not drain and the patients did not get well. If you upset the patient and keep him there night and day for from twenty-four hours to a week he probably will recover.

In resection of the intestines the end-to-end method and the side-to-side method are mentioned. My preference is for neither, and both. Instead of taking time to close the ends I make an oblique end-to-end union, cutting as far back on the side of the intestine opposite the mesentery as may be necessary in order to give a large opening; then you need not fear constriction.

DR. ROBERT F. HYLAND, St. Louis, in closing: The point I wished to bring up for discussion was, as I said, that of spinal anesthesia. With spinal anesthesia there is a lowering of blood pressure incident to the anesthesia, just as there is in shock. Where you are going to draw the line of distinction I do not know. I am not satisfied that spinal anesthesia is

proper to use in abdominal wounds where there is more or less degree of shock and surely never when blood pressure is below 110 mm.

## SOME FACTS IN REGARD TO SURGICAL SHOCK\*

G. S. FOSTER, M.D.

MANCHESTER, N. H.

Surgical shock is a subject which has been very much discussed and about which a great deal has been written during the last two or three decades. For this reason one might think that there were no new phases of this subject which could arouse interest. There are, however, so many factors concerned in producing surgical shock that there will always be need for discussion.

Medical science in general is making very gratifying advances in all of its various activities. So also new ideas as to the fundamental causes of surgical shock and its specific treatment are daily advanced by those keenly interested in the subject and who are desirous of lowering the mortality rate. About surgical shock volumes could be written without exhausting the subject and then the very next day some new thought would be advanced. This is the reason for again choosing this subject for discussion at this time. Two phases of surgical shock will be considered in this paper, (1) some of the underlying causes and (2) the ultimate effects of these causes.

### CAUSES OF SURGICAL SHOCK

The numerous causes of surgical shock can be listed as follows: (1) Chemical or toxic condition; (2) traumatic condition; (3) pain; (4) starvation; (5) thirst; (6) excitement; (7) extreme physical exertion (fatigue). There are many other causes which could be enumerated but the ones cited if very carefully considered will include most of the others that could be named.

1. *Chemical or Toxic.*—The first that confronts us in general toxemia, septicemia, sapremia, pyemia, all of which are of course the result of infection. The causative organism enters the body at some point of break in the continuity of tissue. Once within the body certain conditions of the organism's life are right for development such as the proper temperature, plenty of moisture and food. As a result the multiplication is rapid and the excreta of these organisms, toxic material, become very plentiful and result in the highest degree of poisoning.

\* Read by invitation at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



Fig. 1. Cerebral cortex of guinea pig given morphine and atropine, ether anesthesia, axillary sup. Arrows point toward margin of the nephelated cells. Remainder of field entirely clear.

2. *Traumatic*.—This type may be quite variable in degree because of severe blows upon certain parts of the body, improper and rough handling of tissue, long continued pressure upon parts of the body such as might follow undue traction during a laparotomy or poor placement of the patient.

3. *Pain*.—Pain, uninterrupted and continued over a long period will sooner or later produce severe surgical shock as pain stands out as one of the chief causes of surgical shock. Pain has the same influence upon the bodily economy as the continuous ringing of a door bell has upon the dry cell battery that supplies the electric current. Sooner or later it wears down the battery so that no longer is the current strong enough to produce any forceful result.

4. *Starvation*.—This will so deplete the cellular activity of the body that the final result is a loss of motivity in the cells collectively so profound that reactionary power is absent and the result is shock.

5. *Thirst*.—The same result follows thirst as a causative factor. Deprive the cellular elements of the body of proper moisture and immediately the motivity is lost as well as the power of regeneration.

6. *Excitement*.—Here again we have a causative factor which is like the continued ringing of the door bell that wears out the dry cell battery. In just such a manner excitement long continued will prove itself capable of wearing out the bodily cellular elements.

7. *Extreme Physical Exertion*.—Long continued strain through extreme muscular contractions repeated at short intervals without the necessary proper length periods of rest is an outstanding cause of surgical shock. Too little attention is given this very important factor when dealing with this condition.

By carefully considering these various causes

of shock one can readily understand how they may interlock or overlap and, like a row of dominoes, if one is started falling the succeeding ones one after another fall in a direct line. In this same manner do all these causes have a direct bearing one upon the other. Too careful consideration cannot be given to each of these causes separately and, if taken collectively, their just interpretation warrants every possible effort to prevent and abolish them.

#### THE EFFECTS OF THE CAUSES

Just how do these various causes affect the bodily economy? This could be summed up in a few words, namely, the effect the causes produce upon the individual cell of any special form of tissue. The single cell has its periphery, cytoplasm or protoplasm, and its heart, the nucleus or generative center. Let this be a single muscle fiber, a single nerve cell, a single cell from the brain, liver, spleen, pancreas, etc., and let immediately any one cell or a large or small group of these cells come under the influence of one or more of these outlined causative factors, and something microscopic happens.

The fact is that the cytoplasm immediately becomes clouded or in other words nephelation takes place. One single cell undergoing nephelation has no particular effect upon the body as a whole. However, the continued influence upon any one part or organ or any number of organs produces this same effect over larger or smaller areas with the result that groups of cells undergo nephelation and surgical shock of a greater or lesser degree is produced. For illustration, we have some type of infection as a streptococcus type. Imme-

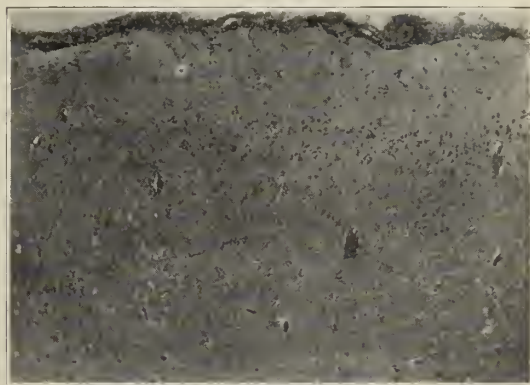


Fig. 2. Cerebral cortex of guinea pig given therapeutic dose of morphine and scopolamine and 20 c.c. axillary sup. A half hour later the control operation was performed. This consisted of complete fracture of both bones of one hind leg. The pig was allowed to suffer for fifteen minutes. Note the very slight and discrete nephelation. This proves the efficacy of the narcotic and axillary sup. in accomplishing prevention to nerve pain transmission with resulting shock and the termination in nephelation.



diately, these organisms begin to multiply and soon produce a widespread toxemia. These toxic elements, the secreta and excreta of microorganisms, the sweat, urine and stools, if you will accept this simile, are absorbed by the cells and chemically influence their protoplasm producing nephelation of the cells. This nephelation is simply an intoxication and the normal use or physiological influence of the cells is immediately thrown off balance. In other words, nephelation puts the cell out of commission and its physiological influence for good, in so far as bodily economy is concerned, has been partially or entirely obliterated depending upon the degree of nephelation of the individual cell or group of cells.

The infection has so affected certain cells or groups of cells of various types of tissue of the human body that it produces a variable degree of surgical shock, depending in a direct ratio upon the limits of nephelation. As an explicit example, if the infection is in the index finger of the right hand, the effect is lymphangitis of the corresponding hand, forearm and upper arm. Immediately, the voluntary muscle fiber cells become nephelated with the paramount effect that these special muscles or groups of muscles lose their normal contractive tone and the part wholly or partly loses its power. Therefore, the localized proportionate degree of surgical shock results.

Again, if a meningitis is the effect produced by the infection, immediately the toxic material of the infecting organism is taken up by larger or smaller groups of cerebral cortex cells or even in a mass formation and in consequence these cells undergo nephelation, either discrete or confluent. At times, the effect is so profound that many of the cortex cells become vacuolated so that the physiological functioning power of the affected cells is interfered with and is below normal limits and temporarily or permanently, partially or completely, lost. The effect is therefore an interference with normal memory, response, nerve end supply, or reflexes one or all in accordance with the degree of infection of the special case in question, and



Fig. 3. Cerebral cortex of guinea pig suffering severe pain without any support or any analgesia, narcosis or supportive measures. Arrows point toward confluent and nephelated cells.

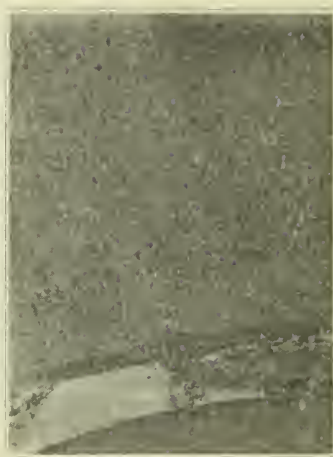


Fig. 4. Cerebral cortex of guinea pig given morphine and atropine, axillary sup, analgesia and ether anesthesia (control operation). Note freedom from any tendency toward nephelation.

immediately shock of some degree is produced.

This whole subject simmers down to one factor in considering the resulting effect, that is pain nerve transmission, whether it be the vasomotor system, muscular system, central or peripheral nervous system, or other system.

For example, a celiotomy is to be performed on two cases of like age, physique, history, etc., with similar intra-abdominal pathology. In the first case, ether is used for the anesthetic and when the patient is under the operation is performed. Following the operation this patient is returned to bed. Two hours later the patient is found with cold, clammy skin, pallor, rapid shallow respiration, rapid running thready pulse and subnormal temperature. The patient is in surgical shock. What has happened? The multiple pain nerve transmission impulses have been so numerous, rapid and severe in degree that the cerebral cortex cells have become nephelated, either discretely or confluent, or some have even undergone vacuolation and the effect is a resulting surgical shock. This is very similar to the infection cases previously cited as it is all a question of pain nerve transmission.

In the second case, the same anesthetic is given and a like intra-abdominal surgical procedure carried out. However, in this case the line of incision extending the same to all cross nerves and deeper layer nerve endings is very carefully made insensible to pain. In other words, all pain nerve transmission areas are completely blocked off so that any impulses occasioned by trauma of any type are entirely obliterated or blocked. Following the operation the patient is returned to bed and makes an uneventful recovery.

Here are two cases similar in all respects in



Fig. 5. Cerebral cortex of guinea pig given ether only (control operation). Note nephelated cells.

so far as history, age, physique and pathology are concerned. The first has a surgical shock; the second makes an uninterrupted recovery. There must be a reason for this; what is it?

The fact in the first case is that no analgesic influence was inaugurated and the multiple pain nerve transmission impulses occasioned by trauma were so numerous that the cerebral cortex cells became nephelated and vacuolated to the degree necessary to effect a surgical shock. In the second case analgesic influence was inaugurated and these pain nerve transmissions entirely obliterated leaving the cerebral cortex cells clear and intact.

This entirely shows that a general anesthetic such as ether does but one thing, i. e., produces unconsciousness thus eliminating fear but in no wise does it prevent pain nerve transmission with its resulting effect upon the cerebral cortex cells and producing nephelation of these cells.

No operation can be done to the best advantage of the patient in every detail without the liability of producing a surgical shock unless the operative area be made completely insensible to pain so as to prevent pain nerve transmission with its resulting effect upon the

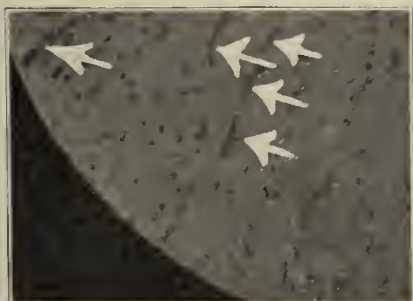


Fig. 6. Cerebral cortex of guinea pig upon which control operation has been done without any support of anesthesia. No marked nephelation cells.

cerebral cortex cells. On the other hand, unless perfect technic is developed in using an analgesic agent in any area certain sections will be unblocked and the result will be a percentage of pain nerve transmission, but if the analgesia is complete this will not occur. Imperfect technic spells imperfect results. Undue traction, and long continued or rough handling of wounds should be avoided under all circumstances regardless of whether or not the area has been treated with an analgesic agent. If a wound is not thoroughly insensible to pain and certain sections are left unblocked the retractor may be set just over this unprotected section and undue traction exerted. The result is pain nerve transmission multiple in character with nephelation of the cerebral cortex cells and surgical shock in some degree.

The patient is once and for all the most important individual in the hospital and any well founded effort to prevent the occurrence of surgical shock must be received with favor. If pain nerve transmission could be kept down to a minimum, within bounds where the cerebral cortex cells are not affected by nephelation except in a very discrete form, surgical shock would not be the deterrent to successful surgical procedure that it is.

With these well founded facts in mind it is possible for all who do surgical work, as well as those who work in all branches of medicine, to cooperate in carrying out a technic which when properly developed would materially lower the mortality rate by entirely excluding some cases which would otherwise be fatal by turning them toward recovery through the elimination of surgical shock.

967 Elm Street.

## TUBERCULOSIS OF JOINTS

CONSERVATIVE PLAN OF TREATMENT WITH  
PRESENTATION OF PATIENTS \*

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The writer realizes that a paper advocating conservatism in the treatment of joint tuberculosis will bring a storm of criticism upon himself but I am not as yet convinced that an early fusion of joints in this disease is always necessary, more especially in children. In adults when time is a serious factor and progress of the disease to the joint is rapid, surgical arthrodesis will be more often indicated and advisable.

This paper contains nothing original but

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



simply describes the combined use of certain conservative measures advocated by orthopedic surgeons. The disease is more prevalent between the ages of three and ten years but no age is exempt. It is always slow and insidious and never develops suddenly. It is usually monarticular but cases of multiple joint involvement do exist.

The disease is caused by the tubercle bacillus, either the bovine or the human type, and must always be remembered as a secondary condition it being a sequela to glandular tuberculosis or infection elsewhere.

The method of infection is either through the respiratory or the alimentary tracts, through milk or other foods and through association with tuberculous parents or tuberculous members of the household, but it is not hereditary.

The *Bacillus tuberculosis* is carried to the joint by the blood and anything that reduces or lowers the resistance of a joint, such as acute or prolonged illness, lack of fresh air and sunshine, improper foods, the acute exanthemata and direct injury to a joint, are all contributory factors.

The spine is most frequently involved, then the hip joint, knee, ankle, elbow and shoulder.

*Symptoms.*—These patients run a slight temperature, 99 to 100, tire easily, lose weight, have poor appetite, may walk with a slight limp more pronounced in the morning and which may disappear during the day to reappear later. In spinal involvement the patients walk with quite a characteristic spinal protective gait, keeping the spine erect, letting the weight fall first on the toes then on the heels; in stooping they bend from the knees and support the body with hands on the thighs,—in high dorsal or cervical cases resting the chin in the hands and in turning from side to side will turn the entire body. Pain is present but is usually referred. In spinal cases it is felt around the abdomen or chest, depending upon the location of the area involved, and many cases have been treated for gastro-intestinal disturbances for months before the true condition is recognized. In hip cases pain is usually referred to the inner side of the knee joint. Muscle spasm is always present. It is nature's splint, is the first symptom to appear and is the last to disappear, and as long as it is present we may rest assured that the disease is active. Muscle atrophy is present and progressive and is not disuse atrophy alone but a part of the disease.

Deformity and limitation of motion are always present. In the spine, the kyphosis; in the hip, first flexion, abduction and external rotation, later flexion, adduction and internal rotation plus actual shortening of the affected

leg; in knee cases, flexion of the leg on the thigh and in well developed cases a posterior dislocation of the tibia may exist.

Swelling is quite marked in the knee as in the smaller joints, plus increased fluid (synovial or tuberculous debris), with increased tension and pain in the joint itself because of distention. Night cries are a characteristic symptom.

Abscess (the cold abscess) is present in a large percentage of cases regardless of the method of treatment and sinuses often exist because of the opening of the abscesses, spontaneously or surgically, and subsequent infection with pyogenic organisms. Many of the sinuses later develop amyloid degeneration of the viscera because of prolonged suppuration.

Tuberculin reactions are of greatest value in children. Many adults will react positively when not tuberculous and the reaction is most valuable from a negative standpoint. The von Pirquet skin reaction is the one of choice because it is harmless whereas the subcutaneous reactions carry an element of harm.

Roentgenogram examination is especially valuable and confirmatory in diagnosis. In early cases, bone atrophy or diminished lime salts is most pronounced, the shadow being not sharply defined; later, in the presence of actual erosion or destruction of bone, this is quite evident. The sound side should also be taken for comparison. The distention from fluids is also shown as is the thickening of the soft parts. Guinea pig injection is done in all cases when possible.

*Treatment.*—Early recognition of the disease with the institution of adequate measures of treatment promptly and efficiently will materially hasten recovery or arrest of the disease and preserve many good functional joints without great deformity. This is especially true in children when time is not a factor and there are no dependents. We believe that all cases of tuberculosis of the joints should be treated in recumbency until after the subsidence of acute symptoms and then some ambulatory method employed.

The first indication is fixation of the joint, with traction in the line of the deformity for correction of the existing deformity, with placing the limb in position of election in the event bony ankylosis occurs, which is the method of cure in cases with much bone destruction. After the subsidence of acute symptoms, some ambulatory method of treatment is instituted, either plaster of paris casts or braces, preferably bivalved casts because these allow access to the involved joint for the application of local measures and are least apt to be disturbed by the patient or parents. Tuberculin is given all cases when it can be borne and is not contra-

indicated by sepsis and temperature. Bacillen emulsion is used, commencing with 1/10,000 of a milligram and increasing by 1/10,000 of a milligram every fourth or fifth day, the patient being watched carefully for any reaction and the frequency and size of doses carefully guarded by this. The doses are gradually increased until the patient is able to take one milligram at a dose without untoward symptoms. When accessible, all joints are aspirated, tuberculous materials or debris drawn off and the joint injected with Calot's paste, 5 to 20 c.c.

After aspiration a pressure pad and snug bandage are applied. The formula of the paste is, camphor phenol 6 parts, guaiacol 8 parts, iodoform 10 parts, and lanolin 100 parts. If fluid recoils in the joint, aspiration and injection of the paste are repeated as often as necessary.

Abscesses should never be opened surgically unless there is severe pressure because of the danger of mixed infection. They should be aspirated and the tuberculous pus withdrawn, followed by injection with Calot's paste and the application of pressure pad to favor obliteration of the abscess cavity. If the cavity refills, the aspiration and injection are repeated, some cases requiring this treatment many times before the abscess entirely disappears. Heliotherapy as advocated by Rollier is used in all cases during the favorable months and during the cold months exposure to the quartz lamp is practiced.

If we remember that tuberculosis of joints is secondary to infection elsewhere and treat the patient, urging and seeing the fulfillment of the best hygienic measures, the most nutritious food, fresh air, light and sunshine in abundance, amid happy and pleasant surroundings, we are lending every necessity for the recovery of patients afflicted with this serious disease.

#### REPORT OF CASES

Case 1. S. H., a boy, came under observation when 14 years of age. Admitted to St. Luke's Hospital October 17, 1928. Joint aspirated and Calot's paste injected. Cast applied. Discharged from hospital November 28, 1928, as an ambulatory patient.

Again admitted February 7, 1929. Joint aspirated and Calot's paste injected. Discharged February 9, 1929, wearing cast. Later a brace was fitted. Brace removed one year ago and patient has remained without symptoms to date.

Case 2. C. R., youth aged 24. Admitted to Trinity Lutheran Hospital April 27, 1921. Discharged from hospital February 2, 1922, wearing cast on leg and plaster of paris cast on right forearm and hand.

Multiple aspirations of joints and injections of Calot's paste. Tuberculin administered, the last dose on November 10, 1924. Disease has been arrested since 1925. Patient was married in November, 1925. He continues to wear caliper brace on the leg but wears no apparatus on the wrist.

1500 Professional Building.

## SEARCH FOR TUBERCULOSIS IN SCHOOL CHILDREN

IMPORTANCE TO THE CHILD, TO THE PARENT  
AND TO THE COMMUNITY \*

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ST. LOUIS

There are numerous recognizable factors bearing influence on tuberculosis control which have been operating for variable lengths of time. The ancient Greeks realized that tuberculosis is a communicable disease and that fresh air and the free use of milk contributed to its cure, all of which have had influence not only on the spread of the disease but also upon its cure. In the following centuries however little advance was made in tuberculosis control and cure until relatively recent time.

It is remarkable that Boddington, the English country practitioner, in the middle of the 19th century laid the foundation for the modern conception of the treatment of tuberculosis by emphasizing the necessity of a generous diet and the importance of prolonged rest, the benefit of abundance of fresh air, night and day, and the advantage of daily supervision of the case by a physician. A few years later Brehmer and Detweiler achieved great success in following the principles and practices of Boddington. In 1854 (seventy-seven years ago) Hermann Brehmer, of Goerbersdorf, Germany, formulated a plan involving the hygienic, dietetic and sanatorium treatment of tuberculosis, now generally recognized as being so important in the cure of this disease. Dr. Trudeau had tuberculosis and went into the Adirondacks in 1884 for the sake of his own cure and established the first sanatorium in this country for the treatment of tuberculosis.

The International Congress for the Study of Tuberculosis met in Washington, D. C., in 1908 and recommended the development of local sanatoria for the care of the tuberculous in each community and sanatoria multiplied over our entire country.

The statement has been made that the most outstanding fact in the tuberculosis problem is the steady decline in the death rate during the past 50 years. This decline has been attributed to a large group of factors fully discussed elsewhere,<sup>1</sup> but the decline is beginning to slacken at the present time. Apparently a plateau in the decline has been reached due largely to having reaped the harvest from present measures and the real problem lies ahead of us in deal-

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



ing with the residue so that other means of combating tuberculosis must be discovered by closer study of the situation in order to sustain this decline.

One must of necessity consider first of all the prevention of tuberculosis, and secondly the treatment of tuberculosis, in connection with its ultimate control. In the reverse order let me mention that the current outstanding contribution to the treatment of tuberculosis has been the development of chest surgery including, of course, pneumothorax. The purpose of this paper, however, is to discuss the other angle of the problem, namely, the prevention of clinical tuberculosis by a close study of school children. Such study is modern in that we have hitherto been dealing largely with the end-result rather than a study of children having as its purpose the prevention of the adult type of tuberculosis subsequently developing in them.

It is within the last five years, as pointed out by Opie,<sup>2</sup> that extensive studies by Opie and McPhedran,<sup>3</sup> Chadwick,<sup>4</sup> Rathbun,<sup>5</sup> Myers,<sup>6</sup> and Opie, Landis, McPhedran and Hetherington,<sup>7</sup> have demonstrated the widespread occurrence of grave tuberculous lesions in the lungs of children who do not seem to be sick and in many instances are well nourished and apparently in robust health. These children do not have the symptoms or physical signs usually associated with pulmonary tuberculosis. Studies undertaken with the aid of all available methods to discover tuberculosis in school children have shown that a considerable number of children who suffer with clinically manifest tuberculosis escape the attention of parents, teachers, school nurses and physicians, even though medical inspection is as effective as possible. Knowledge of the prolonged latent period is gradually being extended. The above referred to studies have shown that some latent lesions may be more extensive than those that are accompanied by symptoms and physical signs. Investigation in school children of much significance has been undertaken in Boston, New York, Detroit, Minneapolis and Philadelphia. The observations of Opie and his collaborators in Philadelphia are especially referred to in this paper.

Intracutaneous tuberculin tests made on 4,000 school children from 1926 to 1929 in Philadelphia show that 37 per cent of the children examined are infected at 5 years of age, 71 per cent at 10 years of age, 80 per cent at 15 years of age, and 90 per cent at 18 years of age. Tuberculous infection is recognized by the tuberculin test but the test cannot be used to determine the severity of the lesions. Roentgenographic examination is the only

means by which the position and extent of latent tuberculous lesions can be determined.

#### SELECTION OF CHILDREN TO BE SPECIALLY EXAMINED

The ideal procedure would be to include all children but owing to numbers this would be difficult at the start. As a minimum, all contact children and all children that may be suspected of having tuberculosis should have a tuberculin test. All reacting to the tuberculin should have roentgen ray examination. Children who have been exposed to infection should be kept under medical supervision even though a solitary tuberculin test and the roentgenograph be negative. No examination or test should be made until the parent or guardian has given written consent.

#### TUBERCULIN TEST

*Mantoux, or Intracutaneous Method.*—Tuberculin O. T. intracutaneously is more delicate than the Pirquet method. The first dose given (with the exception noted below) should be 0.01 mgm. tuberculin. If no reaction occurs with this amount the test may be repeated with 0.1 mgm. tuberculin; again if no reaction the third dose of 1.0 mgm. tuberculin may be given. It is rarely advisable to use a larger dose of tuberculin. It may be presumed that failure to react to 1.0 mgm. of tuberculin is evidence that there is no active tuberculosis.

*Caution.*—In children with visible cervical nodes, ulceration or discharging sinuses 0.001 mgm. tuberculin should first be used as a stronger dose will sometimes cause sloughing.

The dilutions are made so that 0.1 c.c. volume may be used in each test.

#### INTERPRETING THE TUBERCULIN REACTION

The reactions are read 48 hours after injection. If the patient is unable to return in 48 hours a reading may be made 72 hours after the injection. No reading should be made after that period of time. If the patient returns after more than 72 hours following the injection he should be reinjected with the same dose or, if the reaction was negative according to the patient's description, the next higher dose may be given. A positive reaction is one which shows edema and redness at the end of 48 hours. If there is no edema, the reaction is regarded as negative. Reactions are arbitrarily graded from one plus to four plus.

A 1 plus reaction is one with slight but definite edema (not more than 10 mm. raised about 1 mm.); the area of redness, which is less important, is usually much larger. A 2 plus reaction is one with well defined edema (10 to 15 mm. across, raised somewhat more than 1

mm.) and an area of redness which is usually larger than the area of edema. A 3 plus reaction is one with extensive edema (measuring more than 15 mm. and raised more than 2 mm.) with wide area of redness but with no necrosis of the skin. Redness in a few instances extends along a lymphatic. A 4 plus reaction is a reaction characterized by extensive edema, redness and a spot of necrosis. It may be associated with elevation of temperature and malaise. The reaction is sometimes delayed. When the reaction is repeated examine the sites of previous injections. In those cases where the reaction is at all questionable the patient should receive the next highest dose.

If following the injection of 1.0 mgm. of tuberculin the reaction is doubtful, especially when there is redness but no clearly defined edema at the site of injection, the patient may be reinjected with 1.0 mgm. of tuberculin into the dermis of one forearm and as a control into the dermis of the other forearm, an equal quantity of the glycerine broth mixture supplied for such control tests by the makers of tuberculin; 0.1 c.c. of this concentrated control glycerine broth is diluted with 9.9 c.c. of sterile normal saline and 0.1 c.c. of this mixture is injected.

#### DIAGNOSIS OF CHILDHOOD TYPE OF PULMONARY TUBERCULOSIS†

The diagnosis of the childhood type of tuberculosis depends upon the consideration of these factors:

1. *History*.—History of prolonged exposure of a child to pulmonary tuberculosis is extremely important.

2. *Symptoms*.—(a) Weight: Either the childhood or adult type of tuberculosis may be found in overweight, average weight, or underweight children. (b) Undue fatigue: The tendency to tire easily is a very common symptom in these cases. (c) Cough: Cough may or may not be present. It is by no means a constant symptom. Sputum can rarely be obtained from infants and young children. (d) Fever: It should be kept in mind that a child's temperature is more unstable and is about one degree higher than in adults. Therefore, a child's mouth temperature may be within normal limits if it occasionally goes to 100 degrees. A persistent temperature of 100 degrees should lead to a careful search for the cause. It may be found that the child has tuberculosis but most children with the childhood type of disease do not have abnormal temperature. (e) Pleurisy with effusion: A

pleuritic effusion occurs rather frequently in children and if no other cause is known it should be considered due to tuberculosis of the pleura. The symptoms are often so slight that the presence of fluid is unsuspected.

3. *Physical Signs*.—Physical signs, especially in the less advanced cases, are often conspicuously absent.

4. *Tuberculin Test*.—The intracutaneous (Mantoux) test is more accurate and with it a slightly larger number of reactors will be obtained than is possible with the cutaneous (Pirquet) technic. A positive reaction always means infection with tubercle bacilli but it does not necessarily indicate activity. Taken together with other findings it is often a very valuable diagnostic aid.

5. *Roentgen Ray*.—A roentgen ray film is indispensable in the examination of a child's chest. Without it a positive diagnosis of the childhood type of tuberculosis cannot be made. Furthermore, a physician, however good a clinician he may be, is not justified in excluding tuberculosis without checking his physical examination of the chest with the evidence that only a roentgen ray film can give. There are two groups of lesions peculiar to the childhood type of tuberculosis that should be looked for in a roentgen ray film, namely, the parenchymal and the tracheobronchial.

Parenchymal lesions may be found in any part of the lung. They may be circumscribed or diffuse. If diffuse the appearance is that of tuberculous pneumonia. As resorption takes place only one or more small nodules or a few strands remain. This evidence in time may also disappear. Excavation may occur in childhood type of tuberculosis.

Tracheobronchial lymph node involvement may be seen as masses along the trachea, the main bronchi or their subdivisions. The density of the shadow cast by these diseased lymph nodes depends chiefly upon the degree of calcification that has occurred. During the caseous stage, before any deposit of calcium has taken place, their density is so near that of the vessels with their delicate areolar sheath that together fill the hilum space, that the nodes cannot be differentiated. In relatively rare instances the nodes are so large that they protrude beyond the hilum area. Then the outline of the diseased lymph node mass can be seen as it has greater density than the lung tissue with which it is in contact. Lesions of the lymph nodes perceptible by roentgen ray other than tuberculous nodes are rare. Artifacts due to movement cause practically all the diffuse, ill-defined broadening and blurring of the hilum that is often seen. In a study of the

† Diagnostic Standards, National Tuberculosis Association, Ed. 9, January, 1931.



film for evidence of the childhood type of tuberculosis both the parenchymal and tracheobronchial phases must be looked for. One or the other or a combination of both may be present.

6. *Laboratory Tests.*—In infants or very young children a smear from pharynx and larynx will sometimes reveal tubercle bacilli. Tubercle bacilli may sometimes be found in gastric or intestinal contents.

7. *Exclusion of Other Causes That Might Produce Similar Conditions.*—The diseases that sometimes simulate the childhood type of tuberculosis are bronchopneumonia, bronchiectasis, pulmonary abscess, Hodgkin's disease, enlarged thymus, neoplasm, mediastinal abscess.

#### CLASSIFICATION OF CHILDHOOD TYPE OF TUBERCULOSIS

It is frequently impossible to define sharply the difference between the following classes; however, for supervision and treatment this classification will be helpful:

1. *Apparently Healed.*—Demonstrable tuberculosis of the lungs or tracheobronchial lymph nodes shown by roentgenographic examination to be well healed by fibrosis or calcification or both. No clinical symptoms. These patients usually react to tuberculin. When the intracutaneous tuberculin test is negative the lesion may be considered obsolete. It should be remembered however that cases with apparently well healed lesions may have other concealed caseous nodes from which tubercle bacilli may be disseminated. This group includes a very large part of all children reacting to tuberculin even though they have in their lungs or lymph nodes small calcified nodules demonstrable by roentgenographic methods. They require no special prophylactic care.

2. *Observation Cases.*—(A) Cases with small pulmonary or tracheobronchial tuberculous lesions that are becoming calcified. Symptoms absent or ill-defined. (B) Suspects are children who react to the intracutaneous tuberculin test and show abnormal roentgenographic densities at the root of the lungs which may be due to caseous lymph nodes but are not sufficiently characteristic. (C) Children who react positively to the intracutaneous tuberculin test who have no roentgenographic evidence of disease but are in poor general health from an undetermined cause. (D) Children who react positively to the intracutaneous tuberculin test, have no roentgenographic evidence of tuberculosis and are apparently in good health but have been subjected to heavy exposure to a source of infection. Also similar cases in which further contact with a pulmonary case cannot be prevented.

3. *Manifest Disease.*—(A) Cases with diffuse or circumscribed infiltrations of the lungs. (B) Cases with uncalcified tuberculous tracheobronchial lymph nodes. (C) Cases with numerous pulmonary tuberculous lesions or large masses of tuberculous tracheobronchial lymph nodes, even if partially calcified.

Of the school children examined by Opie and his collaborators from 1.5 to 2 per cent required special prophylactic care, and from 0.6 to 0.7 per cent needed sanatorium treatment or its equivalent.

The estimated incidence of tuberculosis in the general population of Saint Louis is from 1.2 per cent to 1.4 per cent, and the actual death rate in Saint Louis is 0.8 per cent of population for 1930. The incidence of tuberculosis in the above group of children is higher than that estimated for the entire population of Saint Louis.

The discovery of children with advanced tuberculous infection is by no means easy and requires a staff adequately trained in the use of technical procedures applicable to its detection. Routine roentgenologic methods are insufficient. School surveys for the discovery of tuberculosis by these methods are inadvisable unless trained personnel and adequate facilities are available.

#### SOME FACTORS INFLUENCING THE COURSE OF TUBERCULOSIS IN CHILDREN

Without doubt the most important factor determining the course of tuberculous infection in children is the size and frequency of the infecting dose of bacilli. A small dose of bacilli causes a hard type of tubercle with giant cells which tends to undergo healing. A large dose of bacilli causes the soft type of tubercle with the necrotic center and usually without giant cells. The soft tubercle is far more likely to cause subsequent tuberculous disease. The hard and soft tubercle can be reproduced in experimental animals by varying the dose of bacilli.

Other factors that influence the course of tuberculous infection in children are the development of immunity and allergy and, occasionally, some accidental factors such as the location of the tubercle.

Study of the spread of tuberculous infection in families has shown that a large part of both clinically manifest and grave latent tuberculosis appears in families in which some member suffers from open tuberculosis.

Through a study of school children the tuberculous infection can frequently be traced to one or both parents or to another member of the family suffering from open tuberculosis of which they have not the least suspicion.

These studies disclose many unrecognized cases of tuberculosis among adults.

Tuberculosis must be added to the list of diseases that can be attacked with advantage in the schools. Here is an opportunity to recognize tuberculosis before it has undermined health and to recognize a large part of the adult type of tuberculosis in adolescence that will develop into active disease during early adult life, and that is the period in which tuberculosis takes most of its victims. Opie believes this question of the latency of tuberculosis is one of great public health importance.

IMPORTANT EXAMPLES OF THE DISCOVERY OF  
TUBERCULOSIS IN CHILDREN SHOWING ITS  
IMPORTANCE TO THE CHILDREN, TO THE  
PARENTS, AND TO THE COMMUNITY

*Example 1. Family A.*—Louise, aged 3, was found to be tuberculous. As the result of this discovery other members of the family were investigated and 5 were found to be tuberculous. The source of this infection was traced to the grandmother.

A daughter-in-law was found to be tuberculous. Upon investigation it was disclosed that her parents died from tuberculosis and that her brother has tuberculosis at the present time. This gives a double source of infection in her branch of family A.

As a result of the discovery of tuberculosis in Louise, aged 3, several branches of family A were found suffering from tuberculosis and the source of infection was traced to the grandmother who since has died from tuberculosis. Furthermore, through the discovery of tuberculosis in the daughter-in-law it was found that her parents died of tuberculosis elsewhere and that her brother has tuberculosis at the present time.

*Example 2. Family B.*—Marie, aged 17, high school age, was discovered to be suffering from tuberculosis. From the investigation of her family it was found that three older members of her family were also suffering from tuberculosis and that 5 younger members of the family had likewise developed tuberculosis three years following its discovery in Marie. The brother, who was regarded as the source of infection, was much emaciated, and had a severe cough associated with profuse expectoration for three years before he would submit to examination. During these three years 5 younger members of the family developed active tuberculosis and became subjects of municipal and public care. There is something seriously lacking in public health legislation which permits such situations to happen very commonly.

*Example 3. Family C.*—The father and

wife's brother have died from tuberculosis. The wife at the present time is in a sanatorium suffering from that disease. Of the 6 children, 4 gave a 4 plus intracutaneous tuberculin reaction. All children have the outward appearance of good health.

One of the reacting children shows a slight pleural effusion in a roentgenograph, another shows markedly enlarged mediastinal lymph nodes and two are negative according to roentgenograph. In two of the tuberculin reacting children one is able to make a diagnosis of manifest tuberculosis and it follows that they should have sanatorium care. In the remaining two of the tuberculin reacting children, one can make the diagnosis of the childhood type of tuberculosis classified as "observation cases," and it follows that they should have open-air school or preventorium care. These children have an occasional elevation of temperature and pulse, have had heavy exposure to a source of infection and 4 plus tuberculin, and should be classified as observation cases despite the negative roentgenograph. (See observation cases, class D.)

The two remaining children showing negative intracutaneous tuberculin test should be kept under medical inspection. By proper care of the children in this family the development of adult tuberculosis can no doubt be prevented. Many such examples are available.

DISCUSSION

Five large cities, Boston, New York, Detroit, Minneapolis, and Philadelphia, have studied school children for the existence of tuberculosis which could be undertaken with advantage by other cities. The observations from these studies have revealed many instructive points.

Children may have active tuberculosis without associated clinical manifestation of the disease.

Active tuberculosis in adult members of families may exist at times when unsuspected and may be discovered through a study of school children and a search for possible source of the infection.

A plan for the diagnosis of the childhood type of tuberculosis is outlined in this paper which is applicable in private practice or in schools.

Children suffering from the childhood type of tuberculosis, "observation cases," require open-air school or preventorium care or its equivalent.

Children suffering from the childhood type of tuberculosis, "manifest disease," require sanatorium care or its equivalent.

One cannot dispose of contact cases with a



single negative tuberculin test and negative roentgen ray examination.

Such studies of school children as are here referred to reveal many new cases of tuberculosis or potential cases of tuberculosis among both children and adults.

Trained social service workers and public health nurses are indispensable for investigation and follow-up work. Specially trained and experienced physicians, roentgenographers and other laboratory facilities are essential.

This work in Saint Louis has been conducted in the chest clinic service of the health centers under the municipal division of health. The hygiene department of the board of education has cooperated in these activities.

There are two chief weak links in this general program. From a study of the families here used as examples, it is clearly shown that the needed coercive legislation is deplorably lacking relative to the control of tuberculosis as a communicable disease. The second and more serious weak link in the program is the matter of family economics. When the breadwinner is stricken it is difficult to convince him that he should abandon his family for the sake of his cure. As a matter of fact his family needs him and the sooner he undertakes his cure the more certain and the sooner will his family have him back as the breadwinner. So that the end-result rather answers this problem. The difficulty is, the matter of health salesmanship to the breadwinner of a family and the dissipation of his responsibilities through the various charitable agencies. Any delay in accepting the situation caused by tuberculosis has always been and still is costly to the patient.

Children found to require special care either in the open-air school or in the sanatorium can usually be placed in such organizations, or elsewhere, and the equivalent care can be specially arranged.

More effective public health legislation, and greater facilities for the care of the child and adult tuberculous are imperative in the ultimate control of tuberculosis.

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(Other articles on tuberculosis will appear in the October issue together with the discussion.)

## SPECIAL ARTICLE

### THE STORY OF THE DEVELOPMENT OF CHOLECYSTOGRAPHY\*

EVARTS A. GRAHAM, M.D.

ST. LOUIS

[How he became inspired to begin the researches that led to the development of cholecystography was outlined by Dr. Evarts A. Graham, St. Louis, in an address delivered by him at the annual meeting of the American Gastro-Enterological Association in Atlantic City, May 5 and 6, 1930. The association had invited Dr. Graham to deliver the first Alvarez Lecture and requested him to use the visualization of the gallbladder as the topic of his address. The story is so entertainingly related and so graphic in parts that we know our members will be glad of the opportunity to read it. The address was published in the May, 1931, issue of *The American Journal of Surgery* and is reprinted here with permission of that journal.]

The Walter C. Alvarez Lecture was founded by Dr. Frank Smithies, Chicago, who provided a certain sum in bonds the income from which is to be presented as an honorarium to the lecturer selected each year by the American Gastro-Enterological Association. The association honored Dr. Graham by requesting him to deliver the first Alvarez Lecture. The second lecture was delivered by Dr. Walter B. Cannon, Boston, at the meeting of the association held in Atlantic City, May 4 and 5, 1931.—Ed.]

When I was asked by Dr. Alvarez to give the first Walter C. Alvarez Lecture before this society on the proposed title of "The Story of the Development of Cholecystography" I felt embarrassed about accepting the invitation. The chief reason for the embarrassment was that I felt that I could hardly discuss this matter frankly without perhaps conveying the idea that I had an exaggerated impression of the importance of cholecystography in comparison with other medical discoveries. Dr. Alvarez, however, was so insistent and advanced such excellent arguments in favor of my presenting an informal account of the various things which led up to the development of cholecystography that I finally consented. My reluctance to accept the invitation was in no way concerned with any lack of appreciation of the high honor which has been accorded to me in being the first to occupy the distinguished position of Alvarez Lecturer. I am one of many who have a very great admiration for the remarkable accomplishments which Dr. Alvarez has achieved in changing our thoughts and ideas about the physiology of the alimentary canal. I am also one of many who have been greatly impressed by the splendid achievements of this society and of its many distinguished members. Accordingly I, a mere surgeon, feel

\* First Alvarez Lecture. Read at the 33d Annual Meeting of the American Gastro-Enterological Association, Atlantic City, May 5-6, 1930.

great humility in being selected to stand before this group of men to initiate a long line of lectures which will be given in the future by many of the most prominent men in the medical profession.

Probably the real origin of my interest in cholecystography was a more extensive training in chemistry than was usual for members of the medical profession and especially for a surgeon. With a desire to be able to appreciate better the rapidly developing chemical ideas which were coming into medicine, and with a hope that a better knowledge of chemistry might enable one to advance the science of medicine, I gave up my small surgical practice and spent the years of 1913 and 1914 at the University of Chicago in the study of chemistry. The time so devoted was fruitful to the extent that it enabled me to think somewhat in chemical terms and thus to take advantage of the possibilities of the application of some relatively simple chemistry to the problem of the improved diagnosis of gallbladder disease.

It is difficult to recall exactly how the idea of the possibility of visualizing the gallbladder by the use of phenolphthalein derivatives presented itself. On several occasions a former member, the late Walter Mills, and I had spoken of the desirability of visualizing the gallbladder in some manner comparable to the visualization of the stomach and other parts of the alimentary canal. No satisfactory method, however, suggested itself until suddenly one evening in the winter of 1922 the idea occurred to me that, since Abel and Rowntree had demonstrated the fact that the chlorinated phenolphthaleins are excreted almost entirely through the bile, it might be possible to obtain a shadow of the gallbladder by substituting for the chlorine atoms other atoms which would be opaque to the x-ray.

Acting on this suggestion I began to consult catalogues of various manufacturing chemical firms to see if I could obtain some phenolphthaleins containing bromine or iodine atoms which were already prepared. If I had been unable to obtain any from the manufacturers I intended to attempt the preparation of some of them myself, or to have them made under my direction. However, I was able to obtain some of the free acid of tetraiodophenolphthalein from the Eastman Kodak Company. This was advertised in a list of various indicators. After receiving the material I turned it over to Warren Cole in July, 1923, and asked him to inject it into some animals to see if he could visualize their gallbladders with it. Dr. Cole had just completed serving his residency in

surgery at the Barnes Hospital and had become a member of the department as an assistant in surgery. Before injecting the material into dogs we converted it into the sodium salt because the free acid was naturally less soluble than the sodium salt. Six dogs were injected intravenously, and x-ray photographs were made of the gallbladder regions in all of them at frequent intervals after the injection. In five of the dogs no shadow was obtained, but fortunately a faint shadow was obtained in the sixth one. At first we were at a loss to understand why we had obtained a faint shadow in one dog, but none at all in the other five animals. The idea then occurred to us that the reason for the failure was probably due to the fact that the animals were not fasting and that, therefore, the injected substance was not staying in the gallbladder for a long enough time to be concentrated and, therefore, to make a shadow. From the standpoint of the future development of cholecystography we often feel grateful to that one dog which cast a shadow, probably because he was accidentally given no food. If we had failed to get a shadow in all of these animals we probably should have abandoned the whole idea as a fruitless one. It is curious on how fragile a thread the destiny of some events hangs. When we came to investigate the matter we found that, as a matter of fact, through some mishap the animal keeper during the time of the experiment had for some reason neglected to feed the one dog on the morning of the injection but he had fed all of the others. Greater efficiency on the part of the animal keeper would doubtless have resulted in a complete failure of our experiment and, therefore, we would have given up the whole idea. Sometimes efficiency can be a curse.

With the clue that the failure to cast a shadow was due to the presence of food in the stomach and duodenum it was then a relatively simple matter to determine that we could obtain shadows in almost every instance in our experimental animals if we were careful to make the injections during a fasting period. Problems of dosage then came up and it was necessary to make a large number of injections in order to determine what would constitute a safe dose for the human being. At about this time Glover H. Copher, another member of the department of surgery, was added to the group conducting the investigation. The problem was particularly complicated because of the fact that in several instances our experimental animals died after receiving injections which were considerably smaller than those which had been given to other animals that survived.



There was also present before us the well-known fact that organic iodine compounds are in general much more reactive than their bromine homologues. This fact made us turn hopefully to the bromine compound, although of course we could predict that the dose of it required to give a shadow of comparable density would be larger than that required for the iodine compound because of the greater atomic weight of the iodine. Accordingly we enlisted the services of the Mallinckrodt Chemical Works of St. Louis who very generously put at our disposal one of their chemists to make a large number of preparations for us. We were eager to try various bromine and iodine substitution products, not only of phenolphthalein but also of other substances which might have possible advantages. We were also interested in knowing whether a more complete saturation of the phenolphthalein molecule with iodine or bromine such as, for example, an octaiodo compound instead of a tetraiodo compound might have greater advantages because of the much greater amount of iodine contained in the molecule. At all events the Mallinckrodt Chemical Works finally supplied us with an exceptionally pure product of the sodium salt of tetrabromophenolphthalein. We injected this material into animals and found that we got good shadows of the gallbladder with much less toxic effects, in spite of the larger dose required, than we had previously obtained from the use of the tetraiodophenolphthalein which we had obtained. This fact made us feel that for the time being it would be safer to use the bromine compound for human beings than the iodine product.

Up to that time our only idea in visualizing the gallbladder had been to introduce something into it which would visualize any contained stones or deformities of the organ. A colored woman in the Barnes Hospital who presented a very characteristic clinical picture of gallstones seemed to present satisfactory conditions for the first trial in the human. We carefully calculated what the proper dose of the substance would be if injected into her and we gave her the calculated amount of the sodium salt of tetrabromophenolphthalein. I may say that Mills was much interested in the outcome of this first trial on the human of this material and we all had great hopes that we would be able to get a sharp image of gallstones in the woman's gallbladder. An ordinary x-ray film before the injection of the dye had failed to show any stones. To our great disappointment and consternation the patient showed no shadow at all of her gallbladder

after injection, in spite of a series of films which were made. Our disappointment was made more intense by the fact that I operated upon this patient and found a gallbladder which contained many stones of different sizes. It seemed to us, therefore, for the moment, as if our high hopes of improving the diagnosis of gallbladder disease had been dashed to the ground. Soon, however, the idea occurred to us that since we had been obtaining excellent shadows in our experimental animals, which presumably had normal gallbladders, the reason for our failure to produce a shadow in a markedly diseased gallbladder might be because the diseased gallbladder could not properly concentrate the material which was brought to it. We also, of course, took into consideration the possibility that in the diseased gallbladder there might have been an obstruction of the cystic duct which prevented the entrance of the material into the organ, but in the case in which we had had a failure I had found an abundance of bile in the gallbladder at the time of operation and also no evidence even suggestive of an obstruction of the cystic duct. We were, therefore, forced to believe that a diseased wall in itself might be sufficient to result in nonvisualization because of the failure of concentration. This conclusion seemed to be an obvious one to draw from the work of Rous and McMaster on the concentrating function of the normal gallbladder.

This conclusion led us to the next step, which was to inject some patients who supposedly had normal gallbladders. We were gratified to obtain well visualized gallbladders in two or three such individuals. This result, while gratifying, made it necessary to change our whole conception of the possible applicability of such a test to the patient. For, instead of having a method which would with certainty reveal gallstones in the x-ray picture we found that we were, on the contrary, dealing with a method which was more of a functional test of the gallbladder and one which would show the gallbladder most plainly under normal conditions, and not at all in those conditions in which the organ was very badly diseased no matter whether stones were present or not. The recognition of the fact that this new method of visualization of the gallbladder was really a functional test was brought out in most of our early writings on the subject and we were, therefore, amazed to discover how many years were required before there was more or less general recognition of this fact. We have always felt, however, that there were many advantages in being able to test the function of the gallbladder because, after all, symptoms are

only an expression of disturbed function. At this time we felt that we were able to predict with some certainty that in order to have a good visualization of the gallbladder certain conditions were necessary. First, the material must get into the blood stream in sufficient amount. Second, it must be excreted by the liver into the bile in sufficient amount. Third, it must get into the gallbladder. Fourth, the gallbladder must be sufficiently normal to be able to concentrate its contents adequately by the absorption of water. If a single link in this chain of events were defective then either faint visualization or nonvisualization would occur.

More and more patients presenting different sorts of disturbances of the biliary tract were injected and the results seemed fully to justify our prediction as to what might be expected from this new method of diagnosis. However, we were not entirely satisfied with the material because in concentrations which would give really striking shadows we sometimes had rather severe reactions. We were, therefore, led to continue a search for a more satisfactory substance. We tried the calcium salt of tetrabromophenolphthalein, instead of the sodium salt. During all of this time we were also engaged in the preparation of many other substances which we thought might have theoretical possibilities of visualizing the gallbladder. In the preparation of these substances, some of which had never been made before, we were greatly helped by the generous cooperation of the Mallinckrodt Chemical Works. In all we tried 48 different substances, of which 13 were shown to visualize the gallbladder. These various substances are listed in our book.<sup>1</sup> Most of these 13 substances had disadvantages of one kind or another.

While making the effort to find some more desirable substance chemists were also engaged in attempting to make a much more highly purified product of tetraiodophenolphthalein than had been commercially possible before this time. They succeeded in their effort and because the iodine compound had many advantages over the other substances which were able to visualize the gallbladder, we returned to the use of the sodium salt of tetraiodophenolphthalein. At about this time Whitaker and Milliken<sup>2</sup> published their article which seemed to indicate that tetraiodophenolphthalein had advantages over tetrabromophenol-

phthalein. In view, however, of our previous experience in being unable to obtain a product of tetraiodophenolphthalein on the market which could be confidently assumed to be free from certain impurities which gave rise to toxic effects, and also because Whitaker and Milliken had reported on the use of the material in only one human being, we were unwilling to recommend wholeheartedly a return to the use of tetraiodophenolphthalein for fear that tragedies might occur at the hands of those who might not be familiar with the dangers inherent in an impure product, and who might also be unfamiliar with the difficulties which existed at that time of manufacturing a pure product. For those reasons then we were somewhat slow to recommend for general use a return to tetraiodophenolphthalein. After the manufacture of the tetraiodophenolphthalein had reached such a state that one could count on obtaining a pure product we then directed our attention to the preparation of the isomeric compound which ordinarily goes under the chemical name of phenoltetraiodophthalein. In this compound the four iodine atoms are in a different part of the molecule. Again we were fortunate in being able to obtain a pure preparation and we, therefore, began experiments with the sodium salt of this isomeric compound. We felt that this substance would have the additional advantage in that not only would it visualize the gallbladder in the same way as tetraiodophenolphthalein, but it would also enable one to carry out simultaneously a test of the excretory power of the liver by virtue of the fact that it stained the serum. Our hopes in this respect were fully justified and for several years, therefore, it has been upon this substance which we have relied. Incidentally, we discovered that a slightly smaller dose of this substance is required for visualization than of the tetraiodophenolphthalein. We do not feel that the ideal substance has yet been found and we are still hoping to prepare something which can perhaps be given hypodermically and be free from all toxic effects in the concentrations necessary to use.

The first demonstration of cholecystography before a medical society occurred in February, 1924, at the St. Louis meeting of the Congress of Internal Medicine. The first publication on the subject was<sup>3</sup> "Roentgenological Examination of the Gallbladder. Preliminary Report of a New Method Utilizing the Intravenous Injection of Tetrabromophenolphthalein." The word cholecystography was first employed in the title of one of our papers which appeared in

1. Graham, E. A.; Cole, Warren H.; Copher, Glover H., and Moore, Sherwood: *Diseases of the Gallbladder and Bile Ducts*, Philadelphia, Lea and Febiger, 1928.

2. Whitaker, L. R., and Milliken, G. A.: Comparison of Sodium Tetrabromophenolphthalein with Sodium Tetraiodophenolphthalein in Gallbladder Radiography. *Surg. Gynec. Obst.* 40:17, 1925.

3. J. A. M. A., Feb. 23, 1924.



the *Journal of the American Medical Association* on January 3, 1925.

Up to April 15 there had been examined at the Barnes Hospital by cholecystography 3529 patients, of whom 2618 were examined by the intravenous method and 911 by the oral method.

As is well known there have been so many modifications of the method proposed that it has been difficult to become familiar with all of them. Most of these modifications, however, have been discussed in our book on "Diseases of the Gallbladder and Bile Ducts." It will not be possible for me to refer to them here.

Reference has already been made to the fact that in turning to phenoltetraiodophthalein we hoped to have not only a substance which would visualize the gallbladder but also one which would simultaneously enable us to test the excretory power of the liver, in a manner similar to the Rosenthal method with phenoltetrachlorophthalein. Soon after the beginning of its employment we discovered that patients who had a high retention of the dye were poor risks for operation. We have, therefore, placed a considerable amount of confidence in this method of examining a patient in order to determine his suitability for operation at a particular time. We were able also to find that even when the retention was high and when, therefore, the patient was a bad risk for operation at that time he could become a better risk, with a corresponding reduction in the amount of retention of the dye, by keeping him at rest in bed, by the administration of an abundant amount of carbohydrate, preferably in the form of glucose, a little calcium and generous amounts of fluid. Almost invariably a patient who was a poor risk simply because of his damaged liver could be made a good risk for operation by our resorting to the plan of treatment outlined here. The effect, both of the test in guiding us as to operative risk and the plan of preparing patients already mentioned, has had a noticeable result in reducing our operative mortality. For example, during the last three years since we have used phenoltetraiodophthalein for the purpose mentioned, our mortality in the operation of cholecystectomy has been only 0.4 per cent. The mortality in the preceding three years was 6.0 per cent. In other words, our present mortality is only a small fraction of what it was before we began to place some reliance on the excretion of phenoltetraiodophthalein as a means of gauging the operability of a patient.

In addition to the invaluable help given to the working out of the problem of cholecystography by Cole and Copher, the splendid assistance and many suggestions furnished by

Dr. Sherwood Moore, the director of the roentgenological department of the hospital, and by Dr. Joseph W. Larimore, a member of the association, were of the greatest possible assistance; in fact it would hardly have been possible for us three surgeons to have been able to work out this problem entirely alone. Not only were the matters of the x-ray technique worked out by Dr. Moore and his associates but also many other valuable suggestions were obtained from both him and Dr. Larimore. It has always been a matter of great personal regret to me that the untimely death of Walter Mills, at the very beginning of the application of cholecystography to the human, prevented his eager and enthusiastic cooperation in the development of the problem.

Finally, I should like to add a few words of appreciation of the kindly and charitable support with which the various members of your organization have received cholecystography as a method of diagnosis. It is seldom that one finds a new procedure taken up so charitably and so enthusiastically as was the reception accorded this particular method by the various members of your organization. For this charitable reception the author now wishes to give his sincere thanks.

Washington University Medical School.

#### PHYSICAL DEFECTS MAY BE OVERCOME THROUGH EXERCISE

Even the most startling physical defects have been overcome by perseverance and exercise. Marguerite Agniel in the April *Hygeia* tells how bow-legged children have grown into graceful dancers and how round-shouldered children have developed perfect posture.

Such things didn't happen in the days of shoulder braces, says Miss Agniel. Braces merely weakened the muscles that needed strengthening, she says, and the afflicted children went through life with round shoulders or bow legs.

Stand tall, Miss Agniel urges her readers, and she gives a recipe for accomplishing a tall posture. Strengthen the trunk muscles and draw the abdomen upward, throw out the chest and tuck in the buttock, she says. Let the shoulders take care of themselves.

Carriage of the head is important for a graceful walk. If it is thrust forward, it gives a bad line; if it is drooping there is the look of laziness and indifference, and if it is carried too high there is a reined-up appearance. Draw in the chin and carry the ears on a line with the shoulders and the hips.

#### COMPOUND FRACTURES

A compound fracture is one in which the bones has pierced the skin, says *Hygeia*. When a bone breaks in several places, the break is termed a multiple fracture. Fractures are called simple even if the bone is broken in more than one place if the skin is not pierced.

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SEPTEMBER, 1931

## EDITORIALS

### MATERNAL MORTALITY STATISTICS

Maternity mortality rates in America have long been disconcerting to the medical profession in the United States. With standards of living prevalent in this country higher than in most countries and medical facilities at least equal to any others the United States has been rated almost at the bottom of the statistical scale with respect to maternal mortality. Denmark, Hungary, Holland, Finland, Japan and Italy have shown maternity death rates of less than half the rate assigned to the United States.

These statements have been practically unchallenged by medical writers in this country. It is true that an occasional voice was raised by some bold searcher in statistics who expressed doubt about their accuracy because the method of compiling and interpreting mortality statistics used in the various countries are not at all uniform. Such voices, however, have been lost in the storm of criticism raised by the numerous writers who protested vehemently against what they argued was incompetent service by obstetricians and general practitioners.

It has remained for an English physician to disclose a possible solution of this condition. Sir Arthur Newsholme, former chief medical officer of the Local Government Board of England and Wales and a distinguished worker in the field of public health, conducted a comprehensive investigation under the auspices of the Milbank Memorial Fund in several countries of Europe, the results of which are included in the first volume of "International Studies on the Relation Between the Private and Official Practice of Medicine" which was recently published. The studies undertaken dealt with medical care of the poor, sickness insurance, hospital organization, midwifery service, the statistics of maternal mortality, the treatment

of tuberculosis and of venereal diseases and other conditions.

Some interesting and gratifying comment by Sir Arthur concerning the statistics of maternal mortality is found in this volume. He states that different methods of computing maternity mortality are employed in different countries and expresses the belief that international comparisons are undependable. In practically all other countries a complicating cause of death occurring in the parturient woman is given preference in the death certificate while in the United States childbirth would be given as the cause of death and the complication a contributing cause. In pointing out the discrepancy in comparing statistics of the United States with those of other countries Sir Arthur says "Had England followed this practice (that used in the United States) the deaths officially ascribed to parturition would have been increased by ninety-six influenza deaths in 1925, while in 1918 the puerperal deaths would have been increased by 1,638."

Perhaps the conclusion that might be drawn from these disclosures is that physicians in the United States are more meticulous in ascribing childbirth as the cause of the death of the parturient woman irrespective of complications than are the physicians in the majority of other countries. It is a satisfaction, however, that criticism must now be on the basis of the maternity mortality rate in the United States and not on the basis of an unfair comparison with the rates of other countries.

### FILTERABLE VIRUSES

A method of making visible the germs hitherto ascribed to filterable viruses, was announced by Prof. Arthur I. Kendall, Evanston, Illinois, Northwestern University Medical School, in the Patten Lecture at that school July 22.

Feeding fresh proteins to bacteria is the key to these revolutionary experiments. Professor Kendall believed that failure in cultivating invisible organisms has been due to the habit of laboratorians in offering the wrong kind of culture media to bacteria. All traditional bacteria diets are made of the decomposition products of proteins, but in human and animal bodies which are the natural prey of disease-causing organisms there are almost none of these products. He concluded that bacteria naturally feed on the pure proteins and therefore he undertook to obtain a food of high-protein ration for his experiments. Taking pieces of small intestine of the human, dog, pig or rabbit he treated the tissue chemically to



remove whatever decomposition products might be present, and made a culture fluid from what was left. When blood from human influenza patients was planted in this medium the fluid became cloudy and a few drops of this cloudy fluid injected into a rabbit was followed by all the typical symptoms of influenza. On transplanting from this "K medium," as Professor Kendall calls his new culture medium, to the old medium, thriving colonies of tiny round bacteria soon developed which were apparently the visible form of the elusive and long-sought influenza organism.

Professor Kendall also cultured in his new high protein medium bacteria known only in their microscopically visible form when grown on the usual media and obtained what was seemingly the invisible, or filterable form. He filtered these invisible form organisms through a porcelain filter so fine that some organic molecules cannot pass through it and again planted the fluid on the regularly used media. Colonies of visible bacteria appeared. He could repeat this process *ad libitum* getting visible organisms from invisible virus filtrates and making visible forms change back to invisible forms by planting on his new media.

He lists organisms as having been changed from visibility to invisibility and back again as, organisms of infantile paralysis, streptococcus, scarlet fever streptococcus, one form of paratyphoid bacillus, typhoid bacillus, staphylococcus of boils, the organism which the late Dr. Hideyo Noguchi found in yellow fever patients, and the small round bacterium which Professor Kendall himself found in influenza cultures.

An interesting by-product of this research is the possibility of an insight into the nature of the bacteriophage. By planting filtered bacteriophage on the usual media he obtained cultures of the organism the bacteriophage destroys, making it appear that the bacteriophage is the invisible form of the bacteria it seems to wipe out. Professor Kendall thinks that bacteriophage of bacteria can be developed by planting the organism in the new medium.

The behavior of bacteria in changing from the visible to the invisible form is peculiar; they lose their sharpness of outline, growing fuzzy and dim under the microscope. Finally nothing but tiny granules remain which will pass through the fine filters and grow back into visible organisms again. Other granules too large to pass through the filter appear none too anxious to resume full fledged bacteria forms on the old medium but will do so in the new medium.

This changeability of organisms can be demonstrated in patients in the early stage of in-

fluenza but not in the later stage when the patients are more severely ill. But certain granules have been found in the spinal fluid of patients in later stages of the disease which have not been explained and the theory is advanced that these may be the half transformed organisms themselves on the way to invisibility.

The existence of disease organisms in two forms, one visible through the microscope and the other invisible but filterable, was reported in 1929 by Dr. Philip Hadley of the University of Michigan to the University Pediatric and Infectious Disease Society. Dr. Hadley worked with the bacteria of dysentery, cholera, typhoid and diphtheria.

Professor Kendall's research is an important advance in the field of bacteriology which may lead to a better understanding and possibly better treatment of certain common diseases.

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## NEWS NOTES

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Dr. Fred W. Bailey, St. Louis, has been appointed chairman of the local committee on arrangements for the meeting of the American Association of Railway Surgeons to be held in St. Louis November 4, 5, 6, 1931. Other members of the committee are: Drs. R. A. Woolsey and O. B. Zeinert. The meetings and headquarters will be in the Hotel Coronado.

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Dr. F. L. Martin, Nevada, was appointed assistant superintendent of State Hospital No. 3, Nevada, August 5, to succeed Dr. E. H. Coon, resigned. Dr. Martin has been a member of the hospital staff for the last two years. Dr. Katherine Suyetoff and Dr. T. T. O'Dell, members of the staff, received promotions and Dr. Lawrence Cooper, who formerly practiced medicine at Cooter, Mo., was appointed a member of the staff.

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A one-reel educational film entitled, "Learn and Live," prepared by the United States Bureau of Mines, Department of Commerce, in cooperation with an industrial concern, emphasizes strikingly the value of a practical knowledge of first-aid methods by laymen. Copies of the film are lent to organizations by the Pittsburgh Experiment Station, Pittsburgh, Pennsylvania. Artificial respiration, control of bleeding, treatment for shock and the application of sterile dressings to wounds are demonstrated in the film. A title in the picture states that during 1930 more than 100,000 people in the United States died as the result of accidents and nearly 3,000,000 others were injured.

Licenses to practice medicine were issued to 156 physicians by the Missouri State Board of Health, July 22. Ninety-two licenses went to St. Louisans and fourteen to Kansas City physicians. Two women were among the licensees, one being Dr. Thelma Ann Cotton, daughter of Dr. T. W. Cotton, Van Buren, president of the Missouri State Medical Association at the Hannibal session in 1929.

Dr. Joseph W. Love, Springfield, President-Elect of the Missouri State Medical Association, was elected president and chief of the staff of the Springfield Baptist Hospital at a meeting of the hospital board of directors July 20. Other officers elected were: Vice president, Dr. W. A. Delzell; secretary, Dr. Robert Glynn, and treasurer, Dr. Lee Cox.

A standardized method of recording case histories and prognoses will be inaugurated at once. The plan includes the employment of a special clerk to be in charge of the records and a room for filing the histories.

Dr. G. D. Kettelkamp, St. Louis, will conduct a clinic at the annual joint meeting of the Mississippi Valley Sanatorium Association and the Mississippi Valley Conference on Tuberculosis which will be held in St. Paul, Minnesota, September 21, 22 and 23. The states participating in the conference are Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Ohio and Wisconsin. Dr. Kettelkamp will demonstrate the value of serial roentgenograms in determining the progression or retrogression of tuberculosis in the body.

Lifelong vegetarians have a lower minimum production of heat and expend less energy on vital bodily processes than do normal persons, as indicated by the basal metabolic rate, one gathers from the investigations by Prof. Glen Wakeham and Louis A. Hansen, Boulder, of the University of Colorado, recently reported to *Science*.

The Colorado scientists determined the basal metabolic rate of nurses in training at a vegetarian sanitarium. Five of the pupil nurses were lifelong vegetarians having never eaten meat of any kind and ten had not eaten meat for five years or longer. The nurses who had never eaten meat had a slightly lower rate than the ten who had been vegetarians for only five years but both groups had considerably lower rates than a group of nurses who were not vegetarians. However, the average rate of the vegetarians was not below what is generally considered the normal low limit.

An international unit of measurement for radium and roentgen ray was adopted by the International Congress on Radiology which met in Paris July 26 to 31. Adoption of the roentgen ray standard means that all nations represented at the congress will use this unit of measurement which probably will ultimately be adopted by all nations. The standard unit was developed by Dr. Lauriston Taylor, Washington, D. C., physicist of the United States Bureau of Standards. Dr. Edwin C. Ernst, St. Louis, was a member of the committee which recommended the adoption of this standardization.

The preliminary program of the International Assembly of the Inter-State Post Graduate Medical Association of North America lists seventy-seven addresses and twelve symposia to be given at the meeting in Milwaukee, Wisconsin, October 19 to 23. Four Missouri physicians are listed for presentation of clinics and papers.

Each day diagnostic clinics will open the session and afternoon and evening meetings will be devoted to symposia and other scientific addresses. Subjects of the symposia follow: Monday: the thyroid gland, obstetrics and gynecology, the circulatory system. Tuesday: the gastro-intestinal tract, otolaryngology, malignant diseases. Wednesday: urology, the central nervous system. Thursday: the respiratory system, fractures, the breast. Friday: the gallbladder and liver.

Dr. Elsworth Smith, St. Louis, will open the first session of the meeting on Monday with a medical diagnostic clinic and in the symposium on the thyroid gland he will deliver an address on "Cardiac Irregularities Associated With Diseases of the Thyroid Gland." Dr. Otto H. Schwarz, St. Louis, will appear in the symposium on obstetrics and gynecology speaking on "Conservative Treatment of Eclampsia." Dr. William McKim Marriott, St. Louis, will deliver an address on "Infantile Paralysis" at the Tuesday evening session and on Thursday morning will conduct a pediatric diagnostic clinic. The group of addresses on the central nervous system will be opened by Dr. W. T. Coughlin, St. Louis, with a description of his "Experience Gained in One Hundred Operations Under Local Anesthetic for the Permanent Cure of Trigeminal Neuralgia Major."

Dr. Evarts A. Graham, St. Louis, is a member of the committee on medical research and advancement. Any desired information concerning the session may be obtained from Dr. William B. Peck, managing director, Freeport, Illinois.



Drs. Ralph L. Thompson, Warren R. Rainey and Wm. E. Leighton, St. Louis, have been awarded the King George Medallion for their services in the medical corps of the British Expeditionary Forces during the World War. They were members of Hospital No. 23 at Ataples, France, the so-called Chicago unit which was the first American unit to go to France. The unit was dissolved previous to the entry of the American forces into the conflict. All served with the rank of major. The medal has a portrait of George V on one face and the dates "1914-1918" on the other. The medallions were received from the office of the Adjutant General of the British Army in Washington, D. C.

An additional group of epidemic cerebrospinal meningitis organisms has been discovered at the National Institute of Health, Washington, during studies conducted under the direction of the United States Public Health Service. This is the fifth group of these germs to become known.

During the last five years this infectious disease has been more prevalent in the United States than at any time since the World War. A wave of epidemic cerebrospinal meningitis has traveled slowly across the United States from the Pacific Coast, said Dr. Sarah E. Branham who is engaged in meningitis research at the National Institute of Health, in remarking on the discovery of the new strain. This wave manifested itself in severe outbreaks in Salt Lake City, Chicago, Memphis, Detroit, Indianapolis, Philadelphia, and New Haven.

The new group of meningitis germs was found while Dr. Branham and her co-workers were endeavoring to develop an improved serum for the treatment of this disease. They were at the time examining some 400 cultures collected from various sections of the country where flare-ups had appeared.

The germs of epidemic cerebrospinal meningitis are grouped according to strains but not all strains are alike in their virulency some being more apt to cause a fatal form than other strains. Although the meningococcus was discovered by Weichselbaum in 1887 the knowledge that all strains were not alike was first announced by the French bacteriologist, Dopter, in 1909, while the grouping of the first four strains was made by Dr. M. J. Gordon, a British physician, and his co-workers during the World War. The majority of the strains sent to the National Institute of Health during the recent epidemics in the United States fall into the four groups of Gordon but the new fifth group is predominant in some parts of the Middle West.

A general practitioner is needed in Howell, St. Charles County, Missouri. This is a rural community connected by an all-weather gravel road with St. Charles, eighteen miles distant. For additional information address Mrs. D. B. Pitman, Box 200, R. F. D., Hamburg, Missouri.

In an attempt to avoid a repetition of the tragic results of the epidemic of infantile paralysis in New York in 1916, the New York State Department of Health is asking that persons who have had poliomyelitis donate their blood in order to aid in the treatment of the disease. The incidence of poliomyelitis in New York has been about the same as during last year but the state health department is observing all possible safeguards.

The Rex Research Fellowship of the Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania, is to be expanded and a Rex Research Foundation established in Chicago. The fellowship was established in 1915 by F. O. Moburg, Toledo, Ohio, for research in the extermination of flies and other household insects. Dr. O. F. Hedenburg, Pittsburgh, who has been in charge of the fellowship from its establishment will become director of the Foundation.

From ninety to a hundred thirty-five million dollars is spent by the American people for the one hundred twenty to one hundred eighty million prescriptions which it is estimated are filled annually by approximately sixty thousand drug stores. This estimate is given in *Merck's Report* for July quoting Mr. Wroe Anderson, chief business specialist of the Department of Commerce. The capacity of pharmacies for filling prescriptions is more than ten times as great as the total number of prescriptions filled, the report estimates. A survey of drug stores in St. Louis is being conducted by the Department of Commerce as part of a national campaign to aid American business in combating the estimated ten billion dollar yearly loss from distribution waste. Eleven independent drug stores, two chain units and one professional pharmacy—one that fills prescriptions only and does not sell sundries—are being studied. Prescription analysis while a major feature is only one phase of this research project. The workers hope to obtain in addition some definite findings on store management, methods of store merchandising, window display and advertising, store location, and other details of the retail druggist's problems.

Dr. and Mrs. Paul Slater, St. Louis, sailed for China August 6 where they will be stationed in Peiping as missionaries. Dr. Slater was graduated from Washington University School of Medicine in 1929 and served a year's internship at St. Louis City Hospital and another year in the Missouri Pacific Hospital, St. Louis.

Dr. Herbert S. Gasser, St. Louis, professor of pharmacology in Washington University Medical School, has been appointed professor of physiology of the New York Hospital-Cornell Medical College Association's Center which will open in New York in 1932. Dr. G. Canby Robinson, New York, who was dean of the Washington University School of Medicine from 1918 to 1920, is director of the center. The appointments were made a year in advance to enable the men to study the new laboratories and plan the equipment and organization of their departments.

A new type of centrifuge which whirls so fast that its rim travels three times as fast as a bullet leaving the muzzle of an army rifle, has been devised at the University of Virginia by Dr. J. W. Beams and A. J. Weed, Charlottesville.

The principle of the new centrifuge is very simple, the moving part consisting of a metal box shaped like a top with flutings placed at an angle on its underside. The metal top rests in a conical cup into which a stream of air is forced under pressure from beneath. The air lifts the top thus serving as a virtually frictionless bearing and at the same time pushes against the flutings as against the blades of a turbine spinning it around at a terrific speed. The two physicists state that they have obtained rotational speeds as high as half a million a minute and centrifugal force equal to a million times the force of gravity. With one specially constructed model they obtained speeds of such magnitude that the rim was moving at the rate of about 10,000 feet a second, approximately three times as fast as a bullet moves at the instant it leaves the muzzle of a military rifle.

In scientific laboratories much higher centrifugal speeds with corresponding higher forces than are ordinarily obtained are needed for such operations as clearing fine silt out of turbid water, separating cells into their constituent parts and getting tiny water droplets out of oil. Possible uses of the terrific speeds and forces obtainable with the Beams-Weed centrifuge are many.

The enforcement of the Food and Drugs Act costs the American public one cent per capita per year.

At one-hour intervals during every day of the last five years chemists have taken samples of water for analysis at ten different stations on the Illinois River in a study of water pollution.

Twenty-eight nations signed a treaty limiting the production of habit-forming drugs to amounts needed for scientific and medical purposes at the eight weeks' International Conference recently held at Geneva under the auspices of the League of Nations. Five of those signing were European countries which manufacture the drugs but Persia, Turkey and Jugoslavia, large producers, did not become parties to the treaty.

The United States' legislation is stricter than that required by the treaty but the advantage to America lies in the limitation of the amount manufactured in other countries which will render stricter control of legitimate trade abroad and afford better facilities for combating illicit traffic in the United States.

When people have died from shock with a supposedly low voltage of electricity such as from household circuits and appliances, it has been explained on the ground that the voltage had suddenly become greater than the usual 110 or 120 volts. Dr. Horatio B. Williams, New York, offered another explanation based on physiological rather than physical grounds in a paper read at the Philadelphia session of the American Medical Association.

Within recent years medical scientists have learned that under the pressure of a very low potential, often much less than 110 volts, electricity may affect the heart and cause a sort of tremor or wavering in its usual contractions, technically termed fibrillation. Instead of all the muscle fibers of the heart contracting together they each contract separately without coordination. When the current passes through one part of the heart this fibrillation occurs without interfering with the circulation, but when the current passes through another part of the heart the circulation stops at once and death usually follows.

When the human skin is dry it is not a good conductor but when wet the skin becomes a powerful conductor and currents large enough to cause fatal fibrillation of the heart could pass.



The only child is above average in intelligence, moral knowledge, cultural background and honesty; he is just average in cooperativeness and persistence but below average in self-control and in popularity. This characterization of the child who has no brothers or sisters was made by Dr. Julius B. Maller, New York, of Columbia University in a report published in the *Journal of Social Psychology*. Dr. Maller has been making a study of the relationship between size of family and personality of the children based on data gathered in connection with the Character Education Inquiry at Teachers College, New York. Children in families having from two to five offspring are superior in both moral and intellectual characteristics to those born into larger families, Dr. Maller found.

A successful method of treating narcolepsy was announced at the Philadelphia session of the American Medical Association by Drs. John B. Doyle and Luman E. Daniels, Rochester, Minnesota.

A symptom manifested by some persons who suffer from this disease is that they fall down when they laugh or get excited. When anything arouses the patient's emotions his muscles suddenly become weak and he cannot stand, a condition known as cataplexy. Another symptom of the disease is an irresistible desire to sleep. The afflicted person may be conducting business, he may be driving an automobile, it makes no difference what he is doing, he must sleep and he does, whatever the consequences to himself and others may be. The disease was recognized as a distinct condition in 1880 by Gelineau, a French physician.

In most cases of narcolepsy no cause for the condition has been found. Consequently, in the fifty years since the disease was identified and named many treatments have been tried none of which have had very striking success. Recently Drs. Doyle and Daniels employed ephedrine in six patients and another physician employed their method in two cases. All were relieved of symptoms, most of them completely so.

No claim is made that a cure for the disease has been found. The patients must continue the treatment under medical supervision. However, several patients regarded as hopeless have been restored to usefulness and happiness. Since the treatment is not difficult for a competent physician to administer the discoverers predict its wide use.

For the first time the digestive ferment of the stomach which dissolves the starch in food-stuffs and makes it available for the energy needs of the body has been prepared in the pure state. The work was done in the chemical laboratories of Columbia University, New York, by Prof. H. C. Sherman, authority on vitamins, and two associates, Prof. M. L. Caldwell and L. E. Booher, who announced this accomplishment in *Science*.

The crystals of diastase or amylase, the starch-fermenting secretion of the stomach, were obtained from solutions of pancreatic extract in a mixture of alcohol and water. This is the third digestive substance to be isolated. Protease, also found in the digestive juice, which digests such proteins as gelatin and the casein of milk, was recently crystallized by Dr. John H. Northrop and Dr. M. Kunitz at the Rockefeller Institute for Medical Research at Princeton, New Jersey. Urease, the enzyme that transforms urea into ammonium carbonate for plant use, was first made crystalline in 1926 by Dr. James B. Sumner at the Cornell Medical College.

The hundredth anniversary of the discovery of electro-magnetic induction by Michael Faraday will be celebrated September 21 to 23 at the Royal Institution of Great Britain, London, where the experiment that gave such impetus to science was originally made.

Entertainment for delegates and guests will begin Saturday, September 19. An informal meeting will be held Monday, September 21, in the Royal Institution where a statement concerning the program will be made in English, French and German. Entertainment will include a reception for delegates by the president and managers of the Royal Institution, a Faraday commemorative meeting at Queen's Hall, a conference at the Institution of Electrical Engineers, an informal evening assembly at the Royal Albert Hall, a private view of the Faraday Exhibition at the Royal Albert Hall and a garden party at the National Physical Laboratory. By the courtesy of the general officers of the British Association for the Advancement of Science, delegates and foreign guests at the Faraday celebration who are not already members of the association will receive complimentary tickets for the centenary meeting.

The beginning of our knowledge of the principal facts and laws of electro-magnetic induction are accredited to this initial work of Faraday. From his experiments he deduced Faraday's Law which implies that the same quantity of electricity will produce the same amount of chemical effect. He delivered a lecture at the Royal Institution in London in 1816 pro-

phetic of radioactivity. In 1823 he condensed ammonia, sulphur dioxide and other gases and was the first to extract the coal tar product, benzene.

A few more boys than girls are born every year in the United States but boy babies have less chance of being born alive than girl babies it appears from the statistical studies of Dr. William Walter Greulich, Boulder, of the University of Colorado. He recently reported to *Science* that of the babies born dead each year in a certain area there are about 135 boys to every 100 girls. Of babies born alive there are about 106 boys to every 100 girls.

During the first four or five months of pregnancy the mortality among male embryos is very high compared with that of female embryos, the sex ratio for the first four months being 357.48 males to 100 females. This ratio drops gradually until the seventh month and then increases, the increase probably being due to the fact that boy babies are slightly larger than girls and consequently more subject to fatal injury at birth. Figures for sex ratios of stillbirths are not very reliable for the early months but indicate an enormous wastage of male embryos.

The following speakers responded to requests of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of county medical societies:

Dr. B. L. Myers, Kansas City, attended the May 8 meeting of the Nodaway County Medical Society held at Maryville and read a paper on "Infections of the Hand," illustrated with lantern slides.

On May 21 Dr. O. F. Bradford, Kansas City, conducted a clinic at Salisbury for pre-school children. This clinic was held during Better Homes Week under the auspices of the Council of Clubs and the Chariton County Medical Society. Forty-five children were examined.

The St. Francois-Iron-Madison County Medical Society had as its guests on May 27 Drs. Anthony B. Day and D. K. Rose, of St. Louis. Dr. Day spoke on "Medical Aspects of Prostatic Surgery" and Dr. Rose read a paper on "Treatment of Prostatic Hypertrophy." The meeting was held at River Mines.

Drs. Howard H. Bell and L. D. Cassidy, of St. Louis, were the guest speakers at a meeting of the Scott County Medical Society, May 28, at Sikeston. Dr. Bell gave a lecture on "The Diagnosis and Treatment of Tuberculosis in Children," and illustrated his subject with lantern slides. Dr. Cassidy talked on "Enterocolitis."

On June 18 the Five-County Group, consisting of Butler, Dunklin, New Madrid, Pemiscot and Stoddard County Medical Societies, was host to Drs. A. H. Conrad, E. H. Rohlfling, and Clinton W. Lane, of St. Louis. Dr. Conrad spoke on "Early Syphilis"; Dr. Lane described "Late Syphilis," and Dr. Rohlfling followed with a paper on "Hereditary Syphilis." The meeting was held at Malden.

Drs. James B. Costen and O. P. J. Falk attended the June 30 meeting of the St. Francois-Iron-Madison County Medical Society held at Fredericktown. Dr. Costen addressed the members on "The Management of Acute Otitis and Its Complications" and Dr. Falk talked on "Recent Advances in the Diagnosis and Treatment of Heart Disease."

Drs. Jabez N. Jackson and James R. McVay, of Kansas City, were guests of the Lafayette County Medical Society on June 23, at Odessa. The subject of Dr. Jackson's talk was "Appendicitis." Dr. McVay discussed "The Value of the Rectal Examination."

Drs. Eugene S. Auer and Howard A. Rusk, of St. Louis, attended the meeting of the Twenty-Sixth Councilor District held at Waynesville, July 21. Dr. W. H. Breuer, St. James, is Councilor of the District. The district includes the counties of Crawford, Dent, Laclede, Phelps and Pulaski. "Carcinoma of the Cervix" was the subject of Dr. Auer's talk, and Dr. Rusk spoke on "Oleothorax in the Control of Chronic Pleural Effusion."

Sodium thiosulphate effectively wiped out ringworm of the feet of students in the Albany (New York) Junior High School where hundreds of the pupils representing at least half of the total enrollment had the disease, said Dr. William L. Gould, Albany, at the Philadelphia session of the American Medical Association. Ringworm of the feet, or epidermophytosis, also known as toe itch, toe scald, fungus foot, athlete foot, Hong-kong foot or Shanghai foot, is a very common, a very old and a very widespread condition, it being estimated that one half of all adults become infected at some time or other. Nine tenths of those who habitually exercise in gymnasiums contract this fungus infection.

The condition in the Albany school was discovered in routine examination of the pupils. Various measures, such as excluding the children from gymnasium classes and swimming pool, swabbing the feet with iodine or mercurochrome, were tried without success. Then Dr. Gould experimented with sodium thiosulphate and installed a foot bath between the locker and the shower rooms. On the way from shower to locker



room each pupil was compelled to immerse his feet in the chemical bath. In this process the solution got well splashed over the locker-room floor so that the feet of the pupil were in constant contact with the chemical from the time he left the shower until the time for dressing. Even a very weak solution of the thiosulphate was found to be effective and by starting the bath with a rather strong solution of from 10 to 15 per cent it did not become too dilute by the drippings of plain water. Four weeks after the thiosulphate baths were installed the ringworm infection had entirely disappeared.

One reason for the success of this method, Dr. Gould said, is because the entire foot is immersed therefore each part of the foot received an application of the chemical. Sodium thiosulphate in boric acid powder dusted on the feet was found to be equally effective. Mere swabbing the foot with the sodium thiosulphate solution or dusting only a part of the foot with the powder will not cure. Every part of the skin of the foot must be covered.

Despite the general belief to the contrary, the disease of backwardness, hookworm, still has in its clutches one out of every five school children in certain portions of the South, Dr. C. W. Stiles, medical director of the National Institute of Health of the United States Public Health Service, declared in a radio talk delivered under the auspices of Science Service, Washington, D. C., July 24.

Over two decades ago Dr. Stiles investigated the hookworm, discovered the American species and its widespread prevalence in the southern United States and, with the backing of Rockefeller money, launched the campaign that has fought this "germ of backwardness" in every southern state and many foreign countries.

Surveys by independent investigators outside the United States Public Health Service show that hookworm infection in a large part of the South is about half as prevalent as it was when the Rockefeller Sanitary Commission started its work in 1909, at that time more than two million people were affected. However, in some localities today as many as three fourths of the school children are still infected with hookworm. In 1914 the Rockefeller commission found that about one third, or 33 per cent of the 1,087,666 persons examined during four years of its campaign, had hookworm infection, while in 1929 southern state boards of health reported to Dr. Stiles that slightly less than one third, or 28.1 per cent of 121,388 persons examined by health officers, had hookworm infec-

tion. The significant feature of these figures is that hookworm is still widespread geographically in the South.

Dr. Stiles has recently completed a resurvey of southern schools in which nearly 19,000 children were examined and he found the hookworm still a burden upon the health and energies of the South. The schools he surveyed covered 12 grades, some grades being divided into A, B and C classes, according to the pupil's mentality, scholarship or progress in studies. About one fourth of the children in section A showed signs of hookworm disease. Nearly half of the children in the intermediate B section showed symptoms of the disease and over half of the children in the lowest section showed the symptoms. In other words, the proportion of children infected with hookworm increased as their efficiency decreased.

The dollars and cents meaning of the prevalence of hookworm, particularly important in these days of economic depression, was stressed by Dr. Stiles who pictured the hookworm as an enemy of the public pocket-book and said the eradication of hookworm is a sound proposition from the standpoint of the economics of the family, the school and of taxes.

No definite hookworm survey has ever been made in Missouri and the disease is evidently not prevalent because only two positive specimens have been examined by the Missouri State Board of Health and both were from individuals who had come to Missouri from Alabama.

Unbreakable eye-glass lenses have been devised and are being tested for practical usage.

A British scientist concludes that the secretions of the lacrimal glands possess bactericidal qualities and therefore the tears protect the eyes from germs.

The following articles have been accepted for New and Nonofficial remedies:

Abbott Laboratories

Capsules Pentobarbital Sodium—Abbott,  
1½ grains

Eli Lilly & Co.

Pulvules Pentobarbital Sodium—Lilly,  
1½ grains

Elixir No. 229 Ephedrine Sulphate, 2 grains  
Parke, Davis & Co.

Ventriculin, 100 Gm. Bottle  
Sandoz Chemical Works, Inc.

Sandoptal

Tablets Sandoptal, 0.2 Gm.

Nonproprietary Articles

Pentobarbital Sodium

## OBITUARY

### ARTHUR GOEBEL, M.D.

Dr. Arthur Goebel, St. Louis, a graduate of the St. Louis Medical College (now Washington University School of Medicine) in 1879, died August 3 at De Paul Hospital, St. Louis, of heart disease after an illness of a month. He was 76 years old.

Dr. Goebel was born in St. Louis and there he received his preliminary and medical education. Following the completion of his medical course fifty-two years ago he served for three years at the old City Dispensary and then entered private practice which he continued until a month preceding his death. He had maintained the same office at 3508 Market Street for more than forty years.

While inactive in organized medicine Dr. Goebel was well loved and esteemed by the members of his profession and they joined with his many friends in sorrowing at his death.

Dr. Goebel never married. He is survived by his nephew, Dr. Theodore Greiner, and three nieces.

### CHARLES W. REAGAN, M.D.

Dr. Charles W. Reagan, Macon, a graduate of the University of Missouri School of Medicine, Columbia, 1884, died suddenly at the dinner table in his home, July 31. He was 75 years old.

Dr. Reagan had practiced in Macon for thirty-three years. Preceding his locating in Macon he had practiced in Audrain County and in St. Louis. Dr. Reagan was allied with organized medicine during the most active part of his career and always maintained an interest in the advancement of medicine and a interest in his colleagues. He is mourned by many members of his profession and many friends.

He is survived by his widow, two sons and a daughter.

### HEARING DIFFICULTY OFTEN REMEDIED WITH EAR PHONES

Electrically operated ear phones are of considerable benefit to persons who have difficulty with the sound-conducting apparatus of the middle ear, says *Hygeia*. The wearing of ear phones, contrary to the belief of some people, does not injure the ear.

In the newer phones, the adventitious noises that interfere with the discrimination of sounds have been eliminated.

An examination by a specialist should determine whether or not a deaf person should wear ear phones, depending on the type of impairment that is present. It often happens that a mere magnification of sound accomplished by the ear phone enables a person to hear.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

Lafayette County Medical Society, May 23, 1931.

Putnam County Medical Society, July 7, 1931.

Schuyler County Medical Society, August 15, 1931.

### KANSAS CITY ACADEMY OF MEDICINE

Meeting of May 22, 1931

DETERMINATION OF THE NUMBER, SIZE, AND HEMOGLOBIN CONTENT OF THE RED BLOOD CELL.—By DR. RUSSELL L. HADEN, Cleveland Clinic, Cleveland.

The red blood cell was discovered about the middle of the seventeenth century by Swammerdam, Malpighi and Leeuwenhoek. Numerous measurements and other studies were made although the significance of the erythrocyte was unrecognized even by John Hunter in his book on the blood. The first count was made by Karl Vierordt, October 6, 1851. Cramer, in 1855, introduced the fixed dilution of the blood and made the first capillary cell. Welcher used the first diluting pipette and ruled slide. Hayem suggested the round capillary cell. Malassez, who wrote the first monograph on blood counting, made an improved counting apparatus and employed the mixing pipette invented by Potain in 1867 which is little different from the Thoma pipette used everywhere today. Gowers in 1877 placed the ruling in the bottom of the capillary cell and introduced the term hemocytometer. The apparatus of Thoma-Zeiss is little different from the apparatus previously used but was made much more accurately. Hauser in America made the first single piece counting chamber used today.

Leeuwenhoek first measured the size of the red cell by comparing it with a grain of sand and



Thomas Young in 1813 used diffraction for similar measurements. Welcher in 1863 determined the red cell volume by measuring the diameter and thickness of a cell and comparing this with slices of a cylinder of corresponding measurements. Hédin in 1890 introduced the hematocrit to separate cells from plasma. Capps made a study of the red cell with the hematocrit which is still the classic in this field.

Berzelius distinguished the chrome and globulin fractions of the pigment of the red cell. Funke in 1851 obtained oxyhemoglobin crystals, and Hoppe-Seyler purified the crystals, described characteristic spectra, showed the relation of hemoglobin to oxygen and analyzed the crystals quantitatively. Estimations of the iron content were made as early as 1840. Preyer introduced the spectrophotometer for the quantitative determination of hemoglobin and Quinquaud in 1873 determined hemoglobin by the oxygen capacity method.

Besides the van Slyke method there are now two means of quantitative hemoglobin estimation: (1) by direct comparison of the hemoglobin with known solutions of hemoglobin or a similarly colored substitute, and (2) by comparison of hemoglobin derivatives one with the other. The standards of the numerous methods such as those of Haldane, Williamson, Oliver, Dare, Newcomer, Sahli and Talqvist vary; but an acceptable standard can be prepared by the pooling of several fresh bloods of known count and size from healthy individuals and using this in connection with an acceptable colorimetric procedure.

Welcher thought there was a constant relation between the hemoglobin and the red cell count but Duncan showed a discrepancy in chlorosis. Hayem introduced the term "color index" and Capps the term "volume index."

There are four red blood cell constants: (1) the number of erythrocytes, with which is associated the number index; (2) the mean corpuscular volume, best measured as the volume index; (3) the mean corpuscular hemoglobin, with which is associated the color index, and (4) the mean corpuscular hemoglobin concentration, with which is associated the saturation index. These are useful in laboratory classification of the various types of anemia all of which may be divided into groups according to the size of the cells, the number, and the concentration of hemoglobin. They are also useful in prognosis and as an index in treatment, for an anemia with cells poor in hemoglobin may be improved by increasing the hemoglobin while an anemia in which the cells are saturated is not influenced in this manner. In pernicious anemia the volume may temporarily increase at the onset of treatment but eventually it will decrease while the hemoglobin content increases. I believe that iron works as a catalytic agent in forming cells as well as hemoglobin.

#### DISCUSSION

DR. FRANK HALL: This was an admirable presentation. I believe that the best way to specialize on a given subject is first to go back and get the history from the start.

DR. ELLIS WILHELMY: I realize the vast amount of work Doctor Haden has had to do, for during the last few months I have tried to look up some historical data along these lines. The cell diameter was discussed more at first than the cell volume. I believe that the volume is more important. It was dropped for a time after Doctor Capps' work and then taken up again by Doctor Haden.

DR. RALPH MAJOR: I have often instructed my students to look up the history for a comprehensive

study of any given subject. Contrary to a popular impression, the development of an interest in history is not evidence of senility but of maturity. The picture of one of the three discoverers of the red cell painted by Rembrandt recalls that this man was also Rembrandt's physician and cared for him while he suffered with psychoneurotic symptoms. Incidentally Vierordt was also the first one to estimate the blood pressure.

#### CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society held a joint meeting with Health Unit No. 3 of the State Health Department August 11 at Van Buren. The Howell-Oregon-Texas County Medical Society was guest at the meeting. Members of the two societies, resident physicians of the other counties making up the nine counties included in the health unit, wives and friends of the physicians and public health nurses of the district brought the attendance to about ninety.

Dr. T. W. Cotton, Van Buren, delivered the Address of Welcome and was followed by Dr. James Stewart, Jefferson City, state health commissioner, who explained the functions and benefits of the health units in the drouth area and stressed the desire for the cooperation of the local physicians.

An address on "Preventive Medicine" with a clinical demonstration of the Schick test and explanations of immunization by vaccination for smallpox and serum for measles, whooping cough, typhoid and scarlet fever, was given by Dr. Irl Brown Krause, Jefferson City, assistant state health commissioner.

A trip to Big Spring Park preceding luncheon was enjoyed by the physicians and their wives who joined the physicians after being entertained by the Queen Ann's Study Club at the Rose Cliff Hotel.

Dr. T. W. Cotton, Van Buren, presided at the luncheon and called on the following for addresses: Dr. Joseph Love, Springfield; Dr. James Stewart, Jefferson City, and Mrs. U. J. Busiek, Springfield. Mr. Lui Ring, better known as "Ozark Bill," furnished variation in the luncheon entertainment.

Following the luncheon scientific papers were presented by the Howell-Oregon-Texas County Medical Society. Dr. P. D. Gum, West Plains, spoke on office practice touching on many appropriate topics. "Treatment of Varicose Veins" was discussed by Dr. A. H. Thornburgh, West Plains. Dr. L. E. Toney, West Plains, spoke on "Eye-Strain of Nasal Origin" and Dr. Claude Bohrer, West Plains, talked on "Infant Nutrition with Special Reference to Summer Diarrhea."

Both in talent and in attendance the meeting was one of the best professional gatherings ever assembled in this Ozark region. To Dr. T. W. Cotton, Van Buren, goes a large share of credit for the success of the meeting as he made most of the arrangements.

W. T. EUDY, M.D., Secretary.

#### LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society and the Woman's Auxiliary held their annual picnic at Alma, Tuesday evening, July 28. The affair was a surprise to Dr. and Mrs. J. W. Horner, of Alma, who were the guests of honor. The ladies prepared a wonderful lunch which was served cafeteria style in the park.

Those present were: Drs. Lindsey S. Milne and E. F. Robinson, of Kansas City; Dr. and Mrs.

L. S. James and Dr. and Mrs. G. A. Richard, of Blackburn; Dr. and Mrs. J. A. Horner and family, and Dr. and Mrs. Melin, of Alma; Dr. and Mrs. C. T. Ryland and Dr. and Mrs. J. Q. Cope, of Lexington; Dr. and Mrs. Lewis Carthrac, Jr., Corder; Dr. and Mrs. R. C. Schooley, Dr. W. E. Martin and two daughters, Mrs. Lightner, daughter and granddaughter, of Odessa; Dr. and Mrs. E. L. Johnston, Concordia; Dr. and Mrs. Odus Liston and daughter, of Oak Grove; Dr. and Mrs. W. A. Braecklein, Dr. and Mrs. D. C. Davis, Dr. and Mrs. W. E. Koppenbrink and family, and Dr. and Mrs. J. De Voine Guyot, of Higginsville.

#### Meeting of June 23, 1931

True to our slogan that we meet every fourth Tuesday of the month regardless of weather conditions, thirteen members answered the roll-call on one of the hottest days of the year, June 23, at Odessa. The president, Dr. E. L. Johnston, Concordia, called the meeting to order with the following members and guests present: Drs. Jabez N. Jackson and James R. McVay, of Kansas City, who were sent to us by the Committee on Postgraduate Course of the State Association; Dr. Lewis Carthrac, Jr., Corder; A. J. Chalkley and C. T. Ryland, of Lexington; J. De Voine Guyot, W. E. Koppenbrink and W. C. Webb, of Higginsville; E. L. Johnston and F. M. Shryman, of Concordia; Francis W. Mann and John A. Mann, of Wellington; W. E. Martin, E. B. Nisbet and R. C. Schooley, of Odessa.

Dr. Jabez N. Jackson, former president of the American Medical Association, gave an interesting address on "Appendicitis."

Dr. James R. McVay spoke on "The Value of the Rectal Examination," stressing its importance in diagnosing carcinoma. He illustrated his talk with lantern slides.

Dr. John A. Mann, Wellington, was prevailed upon to tell his famous story of an obstetrical consultation which he experienced years ago. It was greatly enjoyed.

J. DE VOINE GUYOT, M.D., Reporter.

#### PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met in the assembly room of the Pike County Hospital, Louisiana. The meeting was called to order by the president, Dr. E. M. Bartlett, Clarksville, with the following members present: Drs. R. L. Andrae, M. O. Biggs, J. W. Crewdson, E. A. Cunningham, C. P. Lewellen, of Louisiana; T. H. Wilcoxon, Bowling Green; E. M. Bartlett, Clarksville.

Dr. T. Hurley Wilcoxon, Bowling Green, health officer for Pike County, gave a report on the recent meeting of the Missouri Health Officers' Association held in Jefferson City. The association is a branch of the United States Public Health Service and works under the direction of the Service. Dr. Wilcoxon read abstracts of the various papers and lectures given at the meeting. The outstanding papers read were those by Dr. M. P. Ravenel, Columbia, professor of biology at the State University, and Chancellor Lindley, of Kansas University, Lawrence, Kansas.

Dr. Ravenel spoke on the accomplishments of modern research in the prevention, diagnosis and treatment of disease.

Chancellor Lindley gave a lecture on "shell shock" as a definite entity and not just a name, as regarded by many. He stated that even though 20 per cent of the cases on hand at the

end of the World War recovered within forty-eight hours after the signing of the Armistice, there is still the other 80 per cent that has never recovered.

Shell shock, Dr. Ravenel reported, is not only an entity of war but is sustained in civil life as a result of nervous and mental strain—the result of high speed and high pressure business. Dr. Ravenel's advice was to do less work, better work, and live longer.

Dr. Wilcoxon closed with an abstract of the talk by Dr. James Stewart, Jefferson City, state health commissioner and secretary of the state board of health. Dr. Stewart told of the future plans of the board of health and its activities and accomplishments to date, such as birth registration, immunization of preschool and school children against communicable diseases, free clinics, especially the traveling trachoma clinic and the work of the trachoma hospital in Rolla, and the saving in blind pensions by these institutions. He also mentioned the work of the state sanitary engineers and the county health officers in inspecting deep wells, town and city water supplies, and numerous other activities to preserve the health of our citizens and to prevent disastrous epidemics.

Following adjournment Miss Hornback and Mrs. Shotwell of the Pike County Hospital staff served refreshments.

R. L. ANDRAE, M.D., Secretary.

#### WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the office of Dr. L. T. VanNoy, Norwood, Thursday, August 6, at 2:00 p. m. The following were present: Drs. J. D. Ferguson and M. C. Gentry, of Ava; A. C. Ames, R. A. Ryan, H. G. Frame, R. W. Denney and C. F. Green, of Mountain Grove; L. T. VanNoy and J. B. Little, of Norwood; Mrs. Vera J. Smith and Miss Eleanor Hackman, of Ozark, State public health nurses.

The meeting was opened informally when Dr. L. T. VanNoy, Norwood, brought in two cases of high blood pressure for examination and discussion. Dr. J. D. Ferguson, Ava, presented a rapidly progressing mental case in a woman aged 55. Dr. J. B. Little, Norwood, presented a case of cerebral apoplexy in a man aged 70 associated with blindness and facial paralysis on the right side and paralysis of arm and leg on the left side.

The meeting was then called to order by the president, Dr. J. D. Ferguson, Ava, and the minutes of the last meeting were read and approved.

The application for membership of Dr. H. G. Frame, Mountain Grove, was read and approved and Dr. Frame was elected a member.

Mrs. Vera J. Smith, Ozark, told about the public health work she accomplished and introduced Miss Eleanor Hackman as her successor for this district. Mrs. Smith answered numerous questions on the service given to physicians and to the public.

The case of Hodgkin's disease reported at the last meeting by Drs. R. W. Denney and A. C. Ames, of Mountain Grove, was discussed but as the case had not been examined by any of the members nothing definite could be reported. It is known, however, that the enlargement on the left side of the neck and the swelling of other glands are increasing. The patient had to give up his



work on account of his appearance and because he is subject to some "spells," the nature of which is not known.

Dr. A. C. Ames, Mountain Grove, reported a case of idiocy in a boy aged 17 who has the physical development of 9 years and mentality equivalent to that of a child of 14 months. A notable feature is his insatiable appetite but inability to chew his food. He takes only liquid foods which he greedily gulps down.

Dr. L. T. VanNoy served the members with refreshments and cigars which prompted the suggestion that we meet in Norwood again next month but it was finally decided that the November meeting be held at Mountain Grove.

A. C. AMES, M.D., Secretary.

## WOMAN'S AUXILIARY

### Officers 1931-1932

President, Mrs. U. J. Busiek, Springfield.

President-Elect, Mrs. David S. Long, Harrisonville.

1st Vice President, Mrs. Ralph W. Holbrook, Kansas City.

2nd Vice President, Mrs. R. S. Kieffer, St. Louis.

3rd Vice President, Mrs. H. M. Grace, Chillicothe.

4th Vice President, Mrs. W. T. Martin, Albany.

Corresponding Secretary, Mrs. F. T. H'Doubler, Springfield.

Recording Secretary, Mrs. J. A. Chenoweth, Joplin.

Treasurer, Mrs. L. S. James, Blackburn.

Auditor, Mrs. J. J. Gaines, Excelsior Springs.

Directors (2 years): Mrs. George Ruddell, St. Louis; Mrs. G. B. Schulz, Cape Girardeau; Mrs. S. P. Howard, Jefferson City; Mrs. H. W. Carle, St. Joseph; Mrs. Calloway, Nevada. (1 year): Mrs. C. B. Summers, Kansas City; Mrs. J. D. Guyot, Higginsville; Mrs. D. A. Barnhart, Huntsville; Mrs. John A. Powers, Warrensburg; Mrs. P. L. Patrick, Marceline.

### CASS COUNTY AUXILIARY

The Woman's Auxiliary to the Cass County Medical Society entertained the members of the medical society by a picnic at the home of Dr. and Mrs. M. P. Overholser, Harrisonville, in June. Nineteen members of the two organizations attended. Separate business meetings were held.

The auxiliary elected the following officers for the year: President, Mrs. N. H. Brierly, Peculiar; vice president, Mrs. T. W. Adair, Archie; secretary, Mrs. G. W. Griffith, Garden City; and treasurer, Mrs. I. N. Parrish, Freeman. Mrs. Parrish and Mrs. Overholser gave reports of the State Meeting at Joplin.

### CLAY COUNTY AUXILIARY

The Clay County Medical Society Auxiliary and the Clay County Medical Society were dinner guests of Mr. Rogers, Liberty, superintendent of the Missouri Odd Fellows Home, and Mrs. Rogers, in June.

A business session of the auxiliary was held at which the following officers were elected for the ensuing year: President, Mrs. O. S. Wilfley, Excelsior Springs; first vice president, Mrs. W. H. Goodson, Liberty; second vice president, Mrs. J. F. Rupe, Smithville; secretary-treasurer, Mrs. Y. D. Craven, Excelsior Springs.

Several wives of members of the medical staff of the United States Veterans' Hospital, Liberty, have joined the Clay County Auxiliary.

### ST. LOUIS CITY AUXILIARY

At the annual meeting of the Woman's Auxiliary to the St. Louis Medical Society June 5 the annual election was held and the following officers were elected: President, Mrs. Francis Reder; first vice president, Mrs. John Zahorsky; second vice president, Mrs. Raymond C. Fagley; third vice president, Mrs. A. G. Wichman; fourth vice president, Mrs. Charles W. Thierry; recording secretary, Mrs. W. Antoine Hall; corresponding secretary, Mrs. George W. Ruddell; treasurer, Mrs. Robert E. Schlueter; directors for two years, Mrs. Hudson Talbott, Mrs. Roland S. Keiffer, Mrs. Edward H. Bosse; directors for one year, Mrs. Willis Young, Mrs. Harry D. Carley, Mrs. Ernest L. Coffin. Honorary director, Mrs. George N. Seidlitz, retiring president.

After a buffet luncheon served by the retiring executive board the annual reports and reports of the Joplin session were given. Forty-six new members have been received into the auxiliary during the year. An informal musical program concluded the meeting.

### NOTES

Mrs. M. P. Overholser, Harrisonville, has recently been appointed national chairman of the press and publicity committee for the Woman's Auxiliary to the American Medical Association. This honor adds to an already large representation in the national auxiliary official circle by Missouri auxiliary members. Mrs. A. B. McGlothlan, St. Joseph, is president of the national auxiliary; Mrs. J. F. Owens, St. Joseph, is the national corresponding secretary; Mrs. George H. Hoxie, Kansas City, who is the retiring national president is now national program chairman; Mrs. Willard Bartlett, St. Louis, is one of the national directors, and Mrs. W. M. Bickford, Marshall, is serving on the committee of public relations.

Mrs. A. B. McGlothlan, St. Joseph, was installed as president of the Woman's Auxiliary to the American Medical Association at the meeting in Philadelphia, June 8, 9 and 10. Mrs. McGlothlan has had unlimited experience in organization work. She was the first state secretary of the Missouri Auxiliary serving in that office for three years. Following her term as secretary she was state and national chairman of *Hygeia* and through her efforts won the hundred dollar prize offered by the National Auxiliary to the state obtaining the largest number of subscriptions to *Hygeia*. Mrs. McGlothlan was a member of the White House Conference on Child Health and Protection. She is interested in civic as well as medical organizations having served as president and treasurer of the St. Joseph Y. W. C. A. board and as a member of the national Y. W. C. A. board. She has taken an active part in Community Chest work and is establishing a county health unit. She is active in cultural club work and in church activities. The Missouri Auxiliary is confident of a successful year for the national auxiliary under the leadership of Mrs. McGlothlan.

### COFFEE HARMS FEW

Among the millions who drink both tea and coffee, relatively few are seriously harmed by the small amount of caffeine that they contain, says *Hygeia*. It is probable that in the United States, the coffee drinker obtains more caffeine.

## MISCELLANY

### CONSTITUTION AND BY-LAWS OF THE MISSOURI STATE MEDICAL ASSOCIATION

#### CONSTITUTION

##### ARTICLE I.—NAME OF THE ASSOCIATION

The name and title of this organization shall be the Missouri State Medical Association.

##### ARTICLE II.—PURPOSE

The purposes of this Association are to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession; and to unite with similar organizations in other states and territories of the United States to form the American Medical Association.

##### ARTICLE III.—COMPONENT SOCIETIES

SECTION 1. Component Societies shall consist of those county medical societies which hold charters from this Association.

SEC. 2. The terms, county medical society and component county medical society, shall be deemed to include all county medical societies and academies of medicine now in affiliation with this Association, or which may hereafter be organized and chartered by the House of Delegates of this Association.

##### ARTICLE IV.—COMPOSITION OF THE ASSOCIATION

This Association shall consist of members who shall be the members of the component county medical societies who have been certified to the headquarters of this Association, and whose dues and assessments for the current year have been received by the Secretary.

##### ARTICLE V.—HOUSE OF DELEGATES

The House of Delegates shall be the legislative body of the Association, and shall consist (1) of delegates elected by the component county societies, and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution.

##### ARTICLE VI.—COUNCIL

The Council shall be the Board of Trustees of this Association. The Council shall have full authority and power of the House of Delegates between annual sessions, unless the House of Delegates shall be called into session as provided in the Constitution and By-Laws. It shall consist of the Councilors, the President, the President-Elect, the Secretary and the Treasurer of the Association. Nine of its members shall constitute a quorum.

##### ARTICLE VII.—SECTIONS AND DISTRICT SOCIETIES

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councilor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

##### ARTICLE VIII.—SESSIONS AND MEETINGS

SECTION 1. The Association shall hold an Annual Session during which there shall be at least two General Meetings, open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates, or such authority may be delegated to the Council.

SEC. 3. Special meetings of either the Association or the House of Delegates may be called by a two

thirds vote of the Council or upon petition by twenty delegates.

##### ARTICLE IX.—OFFICERS

SECTION 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, and twenty nine Councilors, more or less as shall be determined by the House of Delegates from time to time. (Amendment adopted 1931.)

SEC. 2. The officers, except the Councilors, shall be elected annually. The terms of the Councilors shall be for two years; one half the members of the Council shall be elected each year. The Secretary and the Treasurer shall be elected by the Council. All these officers shall serve until their successors are elected and installed.

##### ARTICLE X.—FUNDS AND EXPENSES—BUDGET

Funds shall be raised by an equal per capita assessment on each component society. The amount of the assessment shall be fixed by the House of Delegates. Funds may also be raised by voluntary contributions, from the Association's publications and in any other manner approved by the House of Delegates. The Council shall submit an annual budget to the House of Delegates. All resolutions providing for appropriations shall be referred to the Council and all appropriations approved by the Council shall be included in the annual budget.

##### ARTICLE XI.—REFERENDUM

At any General Meeting of the Association it may, by a two thirds vote, order a general referendum upon any question pending before the House of Delegates. The House of Delegates may, by a vote of its members, submit any question to the membership of the Association for its vote. A majority vote of all the members of the Association shall determine the question.

##### ARTICLE XII.—SEAL

The Association shall have a common seal. The power to change or renew the seal shall rest with the House of Delegates.

##### ARTICLE XIII.—AMENDMENTS

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present at any Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been published twice during the year in The Journal of this Association, or sent officially to each component society at least two months before the meeting at which final action is to be taken.

#### BY-LAWS

##### CHAPTER I.—MEMBERSHIP

SECTION 1. The name of a physician on the official roster of this Association, after it has been properly reported by the secretary of his county society, shall be *prima facie* evidence of membership and of his right to register at the Annual Session.

SEC. 2. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association.

SEC. 3. Each member in attendance at the Annual Session shall register, when his right to membership has been verified by reference to the records of this Association. No member shall take part in any of the proceedings of the Annual Session until he has complied with the provisions of this section of the By-Laws.



## CHAPTER II.—GENERAL MEETINGS

SECTION 1. The General Meetings shall be open to all registered members and guests. Before them, at such times as may have been arranged, shall be delivered the annual addresses of the President and of the President-Elect and the annual orations.

SEC. 2. No address or paper, except those of the President, the President-Elect and the annual orations, shall occupy more than twenty minutes in its delivery. No member, except by unanimous consent, shall speak more than once in the discussion of any paper nor longer than five minutes at any one time.

SEC. 3. All papers read before this Association shall be its property. Each paper, when it has been read, shall be deposited with the Secretary. Authors of papers read before this Association shall not cause them to be published elsewhere until after they have been published in its Journal.

## CHAPTER III.—HOUSE OF DELEGATES

SECTION 1. The House of Delegates shall meet annually at the time and place of the Annual Session. It shall remain in continuous session on the first day of the Annual Session and complete the work coming before it at that session. It shall meet on the third day of the Annual Session to receive the report of the Nominating Committee and complete unfinished business and the election of officers. No new business shall be introduced at this session without the unanimous consent of the delegates.

SEC. 2. Each component county society shall be entitled to send each year one delegate or one corresponding alternate to the House of Delegates for each fifty full paid members or fraction thereof in this Association; provided, however, that each county society shall be entitled to at least one delegate or one corresponding alternate.

SEC. 3. Forty delegates shall constitute a quorum of the House of Delegates. All meetings of the House of Delegates shall be open to members of the Association.

SEC. 4. From among members of the House of Delegates the President shall appoint Reference Committees to which reports and resolutions shall be referred as follows:

Reference Committee on Amendments to the Constitution and By-Laws.

Reference Committee on Resolutions.

Reference Committee on Miscellaneous Affairs.

He shall also appoint a Committee on Credentials and such other committees as may be considered by him to be necessary.

SEC. 5. The House of Delegates shall elect delegates to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

SEC. 6. The House of Delegates shall upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 7. The House of Delegates shall divide the State into Councilor Districts specifying what counties each district shall include, and, when the best interest of the Association and the profession will be promoted thereby, organize in each a district medical society, of which all members of the component county societies shall be members.

SEC. 8. The House of Delegates shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates. Such committees shall report to the House of Delegates, and

may be present and participate in the debate on their reports.

SEC. 9. The House of Delegates shall approve an annual budget of expense to be submitted to it by the Council.

SEC. 10. It shall approve all memorials and resolutions issued in the name of the Association before they shall become effective.

## CHAPTER IV.—ELECTION OF OFFICERS

SECTION 1. The President on the first day of the Annual Session shall select a committee on nominations consisting of ten delegates, no two of whom shall be from the same councilor district. The committee on nominations shall report the result of its deliberations to the House of Delegates in the form of a ticket containing the name of one member for each of the offices to be filled at that Annual Session, excepting the President-Elect, who shall be nominated from the floor of the House of Delegates. On the adoption of this section the nomination of the President for the succeeding year shall be made from the floor of the House. Each candidate for Councilor must be a resident of the district for which he is nominated.

SEC. 2. The report of the nominating committee and the election of officers shall be the first order of business of the House of Delegates at the second meeting of the House.

SEC. 3. All elections of officers shall be by ballot and a majority of the votes cast shall be necessary to elect except for delegates and alternates to the American Medical Association. In case no nominee receives a majority of the votes on the first ballot, the nominee receiving the lowest number of votes shall be dropped and a new ballot taken. This procedure shall be continued until one of the nominees receives a majority of all the votes cast, when he shall be declared elected. In case no delegates or alternates for the American Medical Association receive on the first ballot a majority of the vote, the nominees shall be declared elected in the order of the highest number of votes received, until the allotted number shall have been chosen. In case of a tie vote for delegate or alternate, the tie shall be determined by lot.

SEC. 4. Nothing in this chapter shall be construed to prevent additional nominations being made from the floor by members of the House of Delegates.

SEC. 5. No person known to have solicited votes for or sought any office within the gift of this Association shall be eligible for any office for two years.

SEC. 6. Delegates shall not be eligible for election to any of the offices named in the Constitution, except that of Councilor.

## CHAPTER V.—DUTIES OF OFFICERS

SECTION 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the state during his term of office, and, as far as practicable, shall visit, by appointment, the various sections of the state and assist the Councilors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The President-Elect shall be a member of the Council and of the Executive Committee of the Council ex-officio and shall attend all meetings of those bodies. Should the office of President-Elect become vacant through death or otherwise the Coun-

cil may fill the vacancy until the next annual meeting of the Association. (Adopted 1930.)

SEC. 2a. The Vice Presidents shall assist the President in the discharge of his duties. In the event of the death, resignation or removal of the President the Council shall select one of the Vice Presidents to succeed him. (Adopted 1931.)

SEC. 3. The Treasurer shall give bond in the sum of \$20,000. He shall demand and receive all funds due the Association, together with bequests and donations. He shall pay money out of the Treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

SEC. 4. The Secretary shall attend the General Meetings of the Association and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be Secretary of the Council and shall keep a record of its proceedings. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Session. He shall, with the cooperation of the secretaries of the component societies, keep a card-index register of all the legal practitioners of the state by counties, noting on each his status in relation to his county society, and shall transmit a copy of this list to the American Medical Association, transmitting to its secretary each month a report containing the names of new members and the names of those dropped from the membership roster during the preceding month. He shall conduct the official correspondence, notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the Council and shall make an annual report to the House of Delegates. He shall supply all component societies with the necessary blanks for making their reports, and shall collect from them the regular per capita assessments and turn the same over to the Treasurer. The amount of his salary shall be fixed by the Council.

#### CHAPTER VI.—COUNCIL

SECTION 1. The Council shall meet on the first day of the Annual Session, and daily during the Session and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the third day of the Annual Session of the Association to organize. It shall, through its Chairman, make an annual report to the House of Delegates.

SEC. 2. Each Councilor shall be organizer, peace-maker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exists, for inquiring into the condition of the profession, and to keep in touch with the activities of and to aid in the betterment of the component societies of his district. He shall make an annual report of his work, and of the condition of the profession of each county in his district at the Annual Session of the Council. The necessary traveling expenses incurred by each Councilor in the line of duties herein imposed may be allowed on a proper itemized statement, but this shall not be construed to include his expense in attending the Annual Session of the Association.

SEC. 3. The Council shall be the executive body of the House of Delegates and between sessions shall exercise the power conferred on the House of Delegates by the Constitution and By-Laws. Three members of the Council, elected by the Council, together with the President, President-Elect, and the Secretary, shall be the Executive Committee of the Council and shall constitute a quorum for the transaction of business excepting that concerning the conduct of a member, when a majority of the membership of the Council shall be necessary to act; provided, the action of the Executive Committee of the Council shall be subject to the approval of the Council.

SEC. 4. The Council shall be the Board of Censors of the Association. It shall consider all questions involving the right and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component societies, on which an appeal is taken from the decision of an individual Councilor. Its decision in all cases, including questions regarding members in this Association, shall be final.

SEC. 5. Charters shall be issued to county societies only on approval of the Council, and shall be signed by the President and Secretary of this Association. Upon the recommendation of the Council, the House of Delegates may revoke the charter of any component society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 6. In sparsely settled sections the Council shall have authority to organize the physicians of two or more counties into societies, to be suitably designed so as to distinguish them from district societies, and these societies, when organized and chartered, shall be entitled to all rights and privileges provided for component societies until such counties shall be organized separately.

SEC. 7. The Council shall provide for and superintend the issuance of all publications of the Association, including proceedings, transactions and memoirs, and shall have authority to appoint an editor and such assistants as it deems necessary. It shall prescribe the methods of accounting and through a committee of three of its members, to be known as a Committee on Auditing and Appropriations, shall audit all accounts of this Association. The Council shall adopt an annual budget providing for the necessary expenses of the Association, which shall be prepared and presented for its consideration by the Committee on Auditing and Appropriations at the first meeting of the Council in November of each year. It shall submit an annual report to the House of Delegates, which shall specify the character and cost of the publications of the Association, the amount and character of all of its property, and shall provide full information concerning the management of all affairs of the Association which the Council is charged to administer.

SEC. 8. The Council shall appoint, at least six months before the annual meeting, a committee, consisting of three of its members, to be known as the Committee on Arrangements for the Annual Session. On recommendation of this committee, the Council shall appoint a general chairman of a local committee on arrangements, who shall be a member of the component society of the county in which the Annual Meeting is to be held, and who shall appoint and organize from the members of this county society the personnel of the local committee on ar-



rangements. The local committee on arrangements shall provide suitable meeting places and shall have general charge of all local arrangements subject to the approval of the Committee on Arrangements for the Annual Meeting. All receipts accruing from the Annual Meeting shall be turned over to the Committee on Arrangements and all expenditures made by that committee in connection with the Annual Meeting must be authorized in advance by the Committee on Auditing and Appropriations. Immediately after the Annual Meeting the Committee on Arrangements shall forward to the Treasurer any accumulated balance. Any deficit created on account of the Annual Meeting shall be met by the Council on recommendation of the Committee on Auditing and Appropriations.

SEC. 9. The Council shall by appointment fill any vacancy in office not otherwise provided for which may occur during the interval between annual meetings of the House of Delegates; the appointee shall serve until his successor has been elected and has qualified.

SEC. 10. The salaries of all employees of the Association shall be fixed by the Council.

SEC. 11. The Council shall provide such headquarters for the Association as may be required to conduct its business properly.

#### CHAPTER VII.—COMMITTEES

SECTION 1. The standing committees of this Association shall be as follows:

- A Committee on Scientific Work.
- A Committee on Public Policy.
- A Committee on Publication.
- A Committee on Medical Defense.
- A Committee on Medical Education and Hospitals.
- A Committee on Medical Economics.
- A Committee on Postgraduate Course.
- A Committee on Cancer.

Unless otherwise provided in these By-Laws, each of these committees shall consist of three members, each of whom shall serve for a term of three years. One member of each of these committees shall be appointed annually by the President, by and with the consent of the House of Delegates, provided that at the Seventieth Annual Session one member of each of the foregoing committees shall be appointed for a term of three years, one each for two years, and one each for one year. (Committee on Cancer created 1931.)

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates. Thirty days previous to each Annual Session it shall prepare and issue a program announcing the order in which papers and discussions shall be presented.

SEC. 3. The Committee on Public Policy shall consist of three members, and the President and the President-Elect, and such other members whose experience suggests their value in emergency, to be called by the chairman of the committee. There shall be a joint meeting of this committee and an auxiliary committee, as provided for in Chapter XI, Section 10 of these By-Laws, held annually, as may be ordered on the call of the chairman or three members of the State Committee. The chairman of the State Committee, and in his absence, the President, shall act as chairman at the joint committee meetings. Under the direction of the State Committee, the joint committee shall represent the Association in securing and enforcing legislation in the interest of public health and of scientific medicine.

SEC. 4. The Committee on Publication shall have referred to it all reports on scientific subjects and all scientific papers and discussions heard before the Association. It shall be empowered to curtail, abstract or reject papers and discussions. The committee shall arrange for the publication and distribution of THE JOURNAL.

SEC. 5. The Committee on Defense shall upon request and in compliance with the conditions hereinafter named, and in the defense of suits for alleged malpractice instituted or threatened against any member of the Association.

#### CONDITIONS

(a) Any member whose annual dues have been received by the Secretary of the County Society on or before April 1 shall have the continuous protection provided for in this section. New members have a right to defense on receipt of their dues by the Secretary of the County Society.

(b) Any member whose annual dues have not been received on or before April 1 shall be delinquent from the first day of January of that year and shall remain so until his dues are paid. No member shall receive legal defense for any malpractice suit filed before the date of his enrollment as a member or during his delinquency; nor if the service for which malpractice is alleged were rendered wholly or in part before the date of his enrollment as a member or during his delinquency.

(c) Any member desiring to avail himself of the provisions of this section shall, within three days after any demand has been made upon him, present his request to the Secretary of this Association, together with a complete history of the case and the services therein rendered. The committee shall then, with the aid of its counsel, advise said member up to the time of the institution of suit. Should suit be filed, a copy of the plaintiff's petition must be immediately forwarded to the Secretary of this Association. The committee shall thereupon provide such medical expert and legal services of counsel as may be necessary, but in no case shall the cost to this Association be in excess of \$300 for all such services. The Association does not obligate itself to pay, nor shall it pay in whole or in part, any damages agreed upon in compromise, or awarded after trial, nor shall it pay any of the expenses incident to the taking of depositions nor any of the costs of court. (\$300 provision adopted 1930.)

(d) No member shall be entitled to the above-described defense should the charge of malpractice be brought jointly against him and a hospital or sanatorium in which he is, or at the time of the alleged malpractice was, financially interested.

(e) Such aid as is specified in this section refers to civil malpractice only and is not to be construed to apply to criminal prosecutions.

SEC. 6. The Committee on Medical Education and Hospitals shall serve in this State for the Council on Medical Education and Hospitals of the American Medical Association, and shall have referred to it all questions pertaining to hospitals and medical education.

SEC. 7. The Committee on Medical Economics shall investigate matters affecting the economic status of physicians and shall report annually to the House of Delegates such recommendations as may, in its judgment, seem proper.

SEC. 8. The Committee on Postgraduate Course shall provide speakers for district society meetings when requested by the councilor.

SEC. 9. The Committee on Cancer shall investigate the facilities provided for the care of the cancer sufferer and for the study of cancer in the State

of Missouri and shall cooperate with the American Society for the Control of Cancer and other ethical organizations for cancer control to the end that authentic information in regard to diagnosis and treatment of cancer be properly disseminated throughout the State of Missouri. (Adopted 1931.)

#### CHAPTER VIII.—DUES AND ASSESSMENTS

SECTION 1. The annual dues shall be eight dollars, and shall be levied per capita on the members of the component societies of the Association, provided that for the first four years subsequent to graduation the annual dues shall be one half of the regular dues. They shall be payable on or before January 1 of the year for which they are levied. One dollar of the annual dues shall be credited to subscription to *THE JOURNAL* for one year. The Secretary of each component society shall cause to be collected and shall forward to the offices of the Association the dues and assessments for its members, together with such data as shall be required for a record of its officers and membership. Any member whose name has not been reported for enrolment and whose dues for the current year have not been remitted to the Secretary of this Association on or before April 1, shall stand suspended until his name is properly reported and his dues for the current year are paid. (Four-year provision adopted 1928.)

SEC. 2. The record of payment of dues and assessments on file in the offices of the Association shall be final as to the fact of payment by a member and as to his right to participate in the business and proceedings of the Association and of the House of Delegates.

SEC. 3. Any county society which fails to make the reports required, at least thirty days before the Annual Session of the State Association, shall be held suspended, and none of its members or delegates shall be permitted to participate in any of the proceedings of the Association or of the House of Delegates.

#### CHAPTER IX.—RULES OF CONDUCT

The ethical principles governing the members of the American Medical Association shall govern members of this Association.

#### CHAPTER X.—RULES OF ORDER

The deliberations of this Association shall be conducted in accordance with parliamentary usage as defined in Robert's Rules of Order.

#### CHAPTER XI.—COUNTY SOCIETIES

SECTION 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws shall, upon application to the Council, receive charters from this Association, provided that their Constitutions and By-Laws shall have been submitted to the Council and received its approval.

SEC. 2. Only one component medical society shall be chartered in each county.

SEC. 3. Each county society shall judge of the qualifications of its members, subject to review and final decision by the Council of the State Association. Every reputable and legally qualified physician who does not practice, nor profess to practice sectarian medicine, and who resides or practices in the same county, who shall apply for membership on the prescribed form and subscribe for *THE JOURNAL* and pay the annual dues for the current year, shall be eligible for election to membership. (Amendment adopted 1931.)

A member of a component society whose license has been revoked shall be dropped from membership automatically as of the date of revocation. The Council of the State Association shall have final authority to expel a member should a component county society fail to do so after being so requested by the Council.

A component society may at its discretion place active members who have reached advanced years and have long served the Association and profession, on an "Honor List" and such members shall be known as "Honor Members." They shall enjoy all the privileges of active membership and shall be exempt from the payment of dues.

The Council may upon request of a component society remit the state assessment of a member who has become totally and permanently incapacitated through mental or physical disability and has been a member in good standing during the three consecutive years immediately preceding his disability; provided, that the component society shall remit the county society dues of such member.

A physician living near a county line may hold his membership in that county most convenient for him to attend, on permission of the component society in whose jurisdiction he resides.

SEC. 4. Any physician who may feel aggrieved by the action of the society of his county in suspending or expelling him, shall have the right to appeal to the Council, whose decision shall be final. A county society shall at all times be permitted to appeal or refer questions involving membership to the Council of the State Association for final determination.

SEC. 5. In hearing appeals the Council may admit oral or written evidence as in its judgment will most fairly present the facts, but in the case of every appeal both as a board and as individuals, the Councilors shall, preceding all such hearings, make efforts at conciliation and compromise.

SEC. 6. When a member in good standing in a component county society moves to another county in this State, he shall be given a written certificate of these facts by the Secretary of his society, without cost, for transmission to the Secretary of the society in the county to which he moves. Pending his acceptance or rejection by the society in the county to which he removes such member shall be considered to be in good standing in the county society from which he was certified and in the State Association to the end of the period for which his dues have been paid.

A member of a component society who removes to and engages in the practice of medicine at a location in another county in which there is a component society shall forfeit his membership in this Association and the Secretary shall remove his name from the roster of members of the Missouri State Medical Association unless within one year after such change of residence he becomes a member of the component society in the county to which he has moved.

SEC. 7. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county. Systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it includes every eligible physician in the county.

SEC. 8. At some meeting in advance of the Annual Session of this Association, each component county society shall elect one or more delegates and an equal number of individual alternates therefor to represent it in the House of Delegates of this Association, in accordance with Chapter III, Section 2, of



these By-Laws. The secretary of each county society shall send a list of such delegates and alternates to the Secretary of this Association at least thirty days before the Annual Session. Representation in the House of Delegates shall be contingent on compliance with the foregoing provisions.

SEC. 9. The secretary of each county society shall keep a roster of its members and, if practicable, a list of non-affiliated physicians, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary by the Council. He shall send a copy of the program of each meeting to his district Councilor and to the Secretary of the State Association.

SEC. 10. Each county society shall appoint or elect one of its members as a member of the Auxiliary Committee on Public Policy, and the county society secretary shall send his name and address at once to the Secretary of this Association. The Committee on Public Policy of this Association shall formulate the duties of this auxiliary committee and supply each member with a copy. The auxiliary committeemen shall be accountable to their county societies and to the Council for prompt response to and continued cooperation with the Committee on Public Policy of this Association.

#### CHAPTER XII.—AMENDMENTS

SECTION 1. These By-Laws may be amended at any Annual Session by a two thirds vote of the delegates present at that session, if the proposed amendment has been properly submitted to the House of Delegates and has lain on the table for one day. (Amendment adopted 1930.)

SEC. 2. Upon the adoption of this Constitution and these By-Laws, all previous Constitutions and By-Laws are thereby repealed.

## TRUTH ABOUT MEDICINES

O. W. LILLY'S SOLUTION, DENTAL.—From an examination made in the A. M. A. Chemical Laboratory it is quite likely that the preparation contains potassium mercuric iodide and an arsenic compound, such as "Solution of Potassium Arsenite U. S. P." (Fowler's Solution). The product is apparently prepared by one Dr. O. W. Lilly of Welch, West Virginia. It is recommended by the proprietor for Vincent's infection and all other acute, infectious, ulcerative conditions of the gums and oral mucosa, infected sockets, and pyorrhea. It is a pity that a mixture of such potent ingredients may be dispensed under a proprietary name to the patient for pathologic conditions of the oral cavity. If a dentist or a physician desires to have his patient use a solution containing a mercury or an arsenic compound, it should be prescribed according to the individual needs, with full appreciation on the part of both prescriber and patient of its poisonous character. (Jour. A. M. A., February 21, 1931, p. 634.)

SCARLET FEVER TOXIN.—The Dick scarlet fever toxin is regarded as a safe and efficient immunizing agent against scarlet fever. The main drawback to its use appears to be that several injections, generally not less than five, must be given before such a degree of immunity is established that the subject no longer gives a positive Dick test. (Jour. A. M. A., February 21, 1931, p. 633.)

THERAPEUTIC POSSIBILITIES OF GASTRIC MUCIN.—The gastric mucus aids in protecting the cells from digestive or "erosive" damage by the acid that is

poured into the lumen of the stomach when the gastric glands are active. Undue secretion of mucus in the stomach is responsible for lowering of the gastric acidity, just as proteins tend to "bind" free hydrochloric acid. The actual capacity of mucus to produce such an effect has been verified. Mucin prepared from hogs' stomachs was more potent than equivalent amounts of common protein foods such as gelatin, meat and egg white. In a few human patients with definite histories of ulcer and roentgenographic evidence of peptic ulcer the addition of powdered mucin to the ordinary bland diet brought about relief from subjective symptoms. (Jour. A. M. A., February 28, 1931, p. 693.)

PARIOGEN TABLETS.—There has grown up, during the past four or five years, a huge business in the sale of antiseptics and germicides, real or alleged, that are frankly purchased, if not obviously sold, for contraceptive purposes. The term contraceptive is not used in the advertisements; "feminine hygiene" takes its place. "Pariogen Tablets," marketed by American Drug and Chemical Company of Minneapolis, have been advertised as the "new mode of personal hygiene." An advertisement stated "Pariogen Tablets may be carried anywhere in a purse, making hygienic measures possible almost anywhere, no other accessories or water being required." The advertising has stressed that the tablets are non-poisonous, but do not declare the composition of the tablets. Some six years ago a reading notice appeared in a medical journal from which it appears that the tablets are essentially tablets of chloramine, U. S. P. By selling these under a proprietary name as a nostrum of essentially secret composition, the company is able to get a price that is out of all proportion to the value of its product. (Jour. A. M. A., February 7, 1931, p. 458.)

DEATH FROM EXPLOSION OF MIXTURE OF ANESTHETIC GASES.—It has been two years since, at Evansville, Ind., a tank containing nitrous oxide exploded, killing an anesthetist. Last month a patient died on the operating table in Los Angeles because of the explosion of an anesthetic mixture. Yet the hazard from an explosion of anesthetics is probably less than that of fatally persistent hiccup. It has been pointed out that surgeons and anesthetists need far more to utilize means to prevent postoperative pneumonia than to worry over the hazards of explosions, except of course explosions due to carelessness. In the case of the Los Angeles accident, the patient was given nitrous oxide and oxygen, followed by ether. It has been pointed out repeatedly that a mixture of these gases is explosive. Explosions recorded heretofore appear to have been due to sparks from discharges of static electricity. Various committees of the American Medical Association have reported on precautions that are to be taken towards the prevention of such accidents. (Jour. A. M. A., February 14, 1931, p. 530.)

BRINKLEY'S BROADCASTING STATION.—The Federal Radio Commission refused to renew the broadcasting license of Station KFKB of Milford, Kansas, operated by John R. Brinkley because it was operated mainly in the interest of Brinkley and his associates rather than in the interests of the public. Brinkley appealed the case to the courts but this appeal has been denied. (Jour. A. M. A., February 14, 1931, p. 547.)

THYMOPHYSIN NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry reports that Thymophysin is stated to be a preparation of posterior pituitary and thymus, manufactured by Fritz-

Pezoldt of Vienna and is marketed in this country by the American Bio-Chemical Laboratories, Inc. Because the claims for its action were inadequate, it was necessary to subject Thymophysin to examination by accurate pharmacologic methods to see whether the claims made for it are justified or whether it might not be merely a weak pituitary extract. This study was made by Prof. Erwin E. Nelson of the Department of Pharmacology at the University of Michigan. He studied the action of Thymophysin as compared with pituitary and again the action of thymus in connection with pituitary. Nelson concluded that there is no unequivocal evidence that either oxytocic or pressor activities of pituitary are altered by the simultaneous administration of thymus; that experimentally no difference could be found in the oxytocic or pressor activities of pituitary alone as compared with pituitary plus thymus; and that Thymophysin ampules contained only about 30 per cent of the strength claimed. The Council declared Thymophysin unacceptable for inclusion in New and Nonofficial Remedies since it is an unscientific preparation marketed under false claims as to its essential action, as to its strength, and as to its safety for mother and child. (Jour. A. M. A., March 14, 1931, p. 860.)

**BOVININE AND NEOBOVININE NOT ACCEPTABLE FOR N. N. R.**—The Council on Pharmacy and Chemistry reports that Bovinine and Neobovinine are marketed by the Bovinine Company of New York and Chicago. In 1909 the Council reported that while Bovinine was advertised as a "condensed beef juice prepared by a cold process" it was not meat juice but a mixture of alcohol, glycerin, added sodium chloride, and apparently some form of defibrinated blood and that the product was marketed with unwarranted claims. In 1914 the Council reported that the unwarranted claims were for the greater part, still made, and also that the conclusions of the first report were fully warranted by the experimental evidence. The Council has not given consideration to the product since the report in 1914 was issued. Attention having again been called to Bovinine through the advertising for a similar one, "Neobovinine," which is marketed with it, a referee of the Council reported that for Bovinine the situation remained about the same as when the product was last considered. Neobovinine 20 is stated to be "essentially BOVININE (*Plain*) in which is incorporated the active principle of fresh whole liver." Certainly the combination of Bovinine with a liver extract of undeclared character must be held an unscientific mixture. The case histories are entirely unsatisfactory and report conditions in which it is known that there could not possibly be the results reported. The cases of pernicious anemia are not reported with sufficient data on which to base an opinion. The Council reaffirmed the rejection of Bovinine and declared Neobovinine unacceptable because the information in regard to its composition is inadequate, because the therapeutic claims advanced for it are unwarranted, and because the combination of "Bovinine" with a liver extract of undeclared character is unscientific. (Jour. A. M. A., March 14, 1931, p. 860.)

**THE CONTROL OF NARCOTIC ADDICTION.**—Narcotic addiction is again the focus of an extraordinary amount of attention. The results of investigations concerning the subject are being made public.

The taking of narcotics is usually an attempt on the part of some one with little will power to achieve a state of euphoria or artificial happiness. The addict finds withdrawal accompanied by exceedingly unpleasant symptoms and tends to succumb again. Apparently it is possible for an experienced physician to carry an addict through the

withdrawal period with relatively little distress. The importance of narcotic preparations should not be underestimated. Nevertheless there exist in medicine innumerable occasions when one or more of the relatively non-habit-forming sedatives, narcotics, hypnotics and analgesics may be employed to substitute for an opium derivative. A series of articles is to be published in an effort to indicate the relatively few instances demanding the administration of opium or cocaine derivatives and the many available substitutes. It is estimated that under twenty-five per cent of narcotic addiction results from prescriptions by physicians in cases in which such prescribing may not have been absolutely necessary. The physician must try to limit his prescribing of narcotics absolutely to those situations where they are indispensable. The medical use of narcotics in the United States appears to surpass that of any other nation. Efforts are being made to limit the prescribing of narcotics to those instances where their use is indispensable. (Jour. A. M. A., March 14, 1931, p. 862.)

**RESEARCH FOR A NON-HABIT-FORMING SUBSTITUTE FOR MORPHINE.**—The committee on Drug Addiction of the National Research Council announces a large collaborative research in alkaloidal chemistry by chemists and pharmacologists of this country. Apparently the present object of the Committee is to prepare a non-habit-forming substitute for morphine that will yet possess the desirable action of morphine. (Jour. A. M. A., March 14, 1931, p. 863.)

**SCAR-POX, an Alleged Cure for Smallpox and Scarlet Fever.**—State and local health officials from Michigan to California have received a form-letter coming from the "White Laboratories" of Chicago, offering to send, on request, a free trial treatment of "Scar-Pox." Among the claims made for Scar-Pox were these: "Scar-Pox, the new and guaranteed remedy for scarlet fever or smallpox"; "Scar-Pox is the tested remedy for the cure of either dread disease, scarlet fever or smallpox"; "It is a vegetable compound, absolutely pure"; "It is guaranteed by the makers to absolutely cure either scarlet fever or smallpox in three days when used as directed." Health officials who received a sample bottle of Scar-Pox were informed that a further supply could be obtained at \$15 per bottle. The A. M. A. Chemical Laboratory analyzed "Scar-Pox" and concluded that it was essentially a solution of commercial cream of tartar (about 0.6 Gm. in 100 c.c.). One of the most astounding features of modern civilization is the fact, verified daily, that any person, however ignorant of medicine or pharmacy, can put up the most fantastically worthless mixtures and sell them as "cures" for some of the most serious diseases known, and there is no legal machinery for stopping it—unless the exploiter is so crude as to violate either the national Food and Drugs Act or the postal laws against fraud. (Jour. A. M. A., March 21, 1931, p. 883.)

**WHAT ONE NEWSPAPER DID TO PROTECT THE PUBLIC AGAINST CHARLATANS.**—Last July, the Philadelphia *Record* started to look into the problem of medical quackery and published a most interesting and enlightening series under the general title "Bootlegging the Healing Arts." The *Record* called for no help from the medical profession, either locally or nationally. The *Record* reports that thirty-seven cases were brought up with thirty-five convictions. (Jour. A. M. A., March 14, 1931, p. 883.)

**DISINFECTANTS.**—In combating contagion, modern sanitary practices have eliminated disinfectants for spraying walls, ceilings and floors of school rooms. The source of infection is the individual; so long as the infected individual is present in the room, any disinfectant that might be used on the walls or the



floor would be of little if any value in preventing infection. Removal of the infected individual usually suffices to end the danger of spreading the infection. Soap and water is the best agent for cleaning floors, together with plenty of fresh air and sunshine. Terminal disinfection, such as fumigation with formaldehyde, has been generally discarded as valueless. In the case of lavatories, urinals and toilet bowls, so-called germicides in reality accomplish nothing except covering up the primary odor by the stronger odor of the chemical used. "Disinfection of hands" may be obtained by a thorough scrubbing with soap and water. In laboratories in which pathologic material is being handled, a solution of mercuric chloride or a solution containing "compound solution of cresol" may be employed. (Jour. A. M. A., March 28, 1931, p. 1098.)

**ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY.**—The Council held its twenty-seventh annual meeting on March 27 and 28. Among the subjects considered, those of special interest to the medical profession were: It was decided to permit the advertising of products accepted for New and Nonofficial Remedies in professional journals intended for dentists, pharmacists, nurses and veterinarians, provided such advertising does not invite or encourage use by unqualified persons. The Council decided that the submitted evidence did not warrant recommendations for the use of gynergen in exophthalmic goiter. It was decided that ovary preparations, except those containing and standardized for the follicular hormone, be omitted from New and Nonofficial Remedies with the close of 1931 unless new and favorable evidence develops. The Council voted to include in New and Nonofficial Remedies a statement of the dosage of cod liver oil which shall be based on the opinions obtained from leading pediatricians. The Council approved a proposal that a joint committee of the Council and the Committee on Foods arrange for the publication of a series of articles on the present status of our knowledge of vitamins A, B, C and D. It was decided to invite manufacturers of cod liver oil preparations included in New and Nonofficial Remedies to propose a uniform method for the determination of vitamin A and vitamin D potency which they would like to have the Council provisionally adopt. It was the general opinion of the Council that claims for the "anti-infective" value of vitamin A in colds and other infections, need further confirmation. The Council decided that the present evidence for the value of copper-iron therapy in the treatment of anemias is insufficient. (Jour. A. M. A., April 18, 1931, p. 1306.)

**LISTERINE AND OTHER MOUTH WASHES.**—By its very name Listerine debases the fame of the great scientific investigator who first established the idea of antiseptics and whose work led to the principle of surgical sterilization and asepsis. The vast income of the Lambert Pharmacal Company from this preparation is testimony to but one thing—that modern advertising pays regardless of the actual merit of the product, regardless of any scientific demonstration of lack of efficiency, regardless indeed of possible harm that may result from unwarranted confidence in any unproved method for the prevention of disease. Even if Listerine and similar mouth washes were actually as antiseptic as their promoters infer, they would not accomplish what is claimed for them. The supreme ridiculousness of the situation becomes apparent when it is realized that the antiseptic virtues of Listerine are so infinitesimal in comparison with better antiseptics as to invalidate

even modest claims made for it. What has been said of Listerine applies equally to a dozen or more "antiseptic" substances that have been brought into the market by other manufacturers. Amos and Andy seem to have made popular a tooth paste for which exaggerated claims have been made since its inception and whose composition has changed repeatedly since that time. Encouraged by this popularity, the manufacturers of Pepsodent have brought out Pepsodent Antiseptic. The advertising literature, the advertising claims, the composition and the method of promotion of Pepsodent Antiseptic resemble essentially similar material used in the promotion of Listerine. There are no data to indicate that Pepsodent Antiseptic is an efficient antiseptic. The public and the medical profession will do well to put their faith only in such antiseptic preparations as have been submitted to the Council on Pharmacy and Chemistry of the American Medical Association and accepted for inclusion in New and Nonofficial Remedies by that Council. (Jour. A. M. A., April 18, 1931, p. 1308.)

**PEPSODENT ANTISEPTIC.**—According to the Pepsodent Company the composition of Pepsodent Antiseptic is as follows: Chlorthymol, 0.2 per cent; benzoic acid, 0.2 per cent; boric acid, 10 per cent; citric acid, 0.1 per cent; tartaric acid, 0.1 per cent; flavor, 0.1471 per cent; color, 0.008 per cent; glycerin, 10 per cent; alcohol, 25 per cent; water, 54.2449 per cent. The phenol coefficient is given at the ridiculously low figure 0.15. (Jour. A. M. A., April 18, 1931, p. 1332.)

**MEDICAL ECONOMIC AND MEDICAL BUSINESS.**—For some time physicians have been receiving regularly and complimentary a publication known as "Medical Economics; the Business Magazine of the Medical Profession." The contents of this periodical are devoted largely to the problem of making money out of medical practice. It is apparently little if at all concerned with medical ethics or medical ideals. The vast majority of its space is devoted to the advertisements of products of many manufacturers whose preparations could not possibly be passed by the Council on Pharmacy and Chemistry. Even those manufacturers who cooperate largely with the Council, find in this alleged medical publication an outlet for the announcements of their products that the Council will not accept. (Jour. A. M. A., April 25, 1931, p. 1404.)

### NEW AND NONOFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**POLLEN EXTRACTS-ARLCO.**—The following pollen extracts-Arlco (New and Nonofficial Remedies, 1930, p. 29) have been accepted: Birch Mixture Pollen Extract-Arlco; Maple Mixture Pollen Extract-Arlco; Oak Mixture Pollen Extract-Arlco. Arlington Chemical Co., Yonkers, N. Y. (Jour. A. M. A., March 7, 1931, p. 773.)

**IOPAX.**—Sodium 2-oxo-5-iodopyridine-N-acetate. Iopax contains from 42 to 43.5 per cent iodine. It is proposed for use intravenously in radiographic visualization of the urinary tract. It is also used for injection into the renal pelvis through the ureteral catheter for pyelography. The maximum intravenous dose is 30 Gm. of the powder dissolved in 100 c.c. of redistilled water. Schering Corporation, New York. (Jour. A. M. A., March 14, 1931, p. 859.)

**NUPERCALNE.**—Ciba.—A-butylloxycinchonic acid, 7-diethylethyl-enediamide hydrochloride. Nuper-

caine was first introduced as percaine. Nupercaine is a local anesthetic, acting like cocaine when applied to mucous surfaces and like procaine or cocaine when injected, the action being relatively prolonged. Nupercaine is about five times as toxic as cocaine when it is injected intravenously into animals, and its anesthetic activity is correspondingly greater than that of cocaine when it is applied to a mucous surface; it is many times more active than procaine hydrochloride when it is injected subcutaneously. It is reported to have caused necrosis of tissue in one case and a condition resembling gangrene with recovery in another. Death has been reported after the subcutaneous injection of 135 c.c. of a solution of 1 in 1,000. The usual precautions should be observed when it is injected into the spinal canal or into the urethra. Nupercaine is supplied in the form of crystals; ampules buffered solution 2 c.c., 1:200; ampules solution 5 c.c., 1:1,000; solution 2%, and tablets, 0.05 Gm. Ciba Company, Inc., New York. (Jour. A. M. A., March 21, 1931, p. 946.)

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

**REFINED AND CONCENTRATED ANTIPNEUMOCOCCIC SERUM, TYPE I, LEDERLE.**—An antipneumococcic serum (New and Nonofficial Remedies, 1930, p. 351) prepared by immunizing horses with intravenous injections of cultures of Type I and Type II pneumococci. When test bleedings show the serum to have reached a sufficient degree of potency for type I pneumococcus, the horses are bled aseptically, the serum is refined and concentrated by the method of Lloyd B. Felton. The finished product contains type II pneumococcus antibodies, but not in therapeutically important amounts. It is marketed in packages containing 10,000 and 20,000 units of Type I pneumococcus. Lederle Laboratories, Inc., Pearl River, N. Y.

**POLLEN EXTRACTS—Swan-Myers.**—The following pollen extracts—Swan-Myers (New and Nonofficial Remedies, 1930, p. 35) have been accepted: Mixed Grass Pollen Extract—Swan-Myers (Timothy, June Grass, Orchard Grass, Red Top and Sweet Vernal Grass in equal proportions); Russian Thistle Pollen Extract—Swan-Myers. Swan-Myers Company, Indianapolis, Ind. (Jour. A. M. A., April 18, 1931, p. 1307.)

### PROPAGANDA FOR REFORM

**MORE MISBRANDED NOSTRUMS.**—The following products have been the subject of prosecution by the Food and Drug Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Sun Laxative Cold Breakers (The S. Pfeifer Manufacturing Company), tablets containing acetanilid, extracts of a laxative plant drug, traces of arsenic, and cinchona alkaloid. B-L Cold and Grippe Tablets (The Blud-Life Company), containing 1 grain acetanilid together with a quinine compound, caffeine, camphor monobromate, aloin and a resin. Mathieu's Mervine Powders (Favreau and Collette), consisting essentially of acetanilid, sodium bicarbonate and caffeine. G. G. Germicide (Rose Rockwood), consisting essentially of formaldehyde, extracts of plant drugs including sassafras, alcohol and water. Success Cold Tablets (Walgreen Company), containing acetanilid, some laxative plant drug extractives, with wintergreen flavor. Muco-Solvent and Muco-Solvent Salve (Hessig-Ellis Drug Company and VanVleet Ellis Corporation), the first consisting essentially of salicylic acid, extracts of

plant drugs, glycerin, alcohol and water; the second consisting essentially of petrolatum and volatile oils, containing camphor, menthol, turpentine and spearmint. Nervac (Nervac Medicine Company), consisting of extracts of plant drugs including laxatives, salicylic acid, glycerin, and a small amount of alcohol, flavored with wintergreen. Da-Lee Mouth Wash (Da-Lee Chemical Company, Inc.), consisting essentially of sodium bicarbonate, small amounts of glycerin and volatile oils, with 36 per cent of alcohol and water. Selso Headache Powders (The Standard Manufacturing Laboratories), containing acetylsalicylic acid, acetphenetidin and caffeine. Marvel Chemical Tablets (The Marvel Company), containing boric acid, compounds of aluminum, iron, zinc and calcium, sulphates, carbonate, tannic acid, menthol and thymol. Fritch's Vegetable Soap (J. A. Fritch), essentially a soap made from palm oil perfumed with oil of citronella. (Jour. A. M. A., March 7, 1931, p. 793.)

**LISTERINE.**—The A.M.A. Chemical Laboratory reports on the chemical and bacteriological examination of Listerine. It finds the composition of Listerine essentially that of a solution containing 25 per cent alcohol, 2.4 per cent of boric acid, 0.4 per cent of benzoic acid, with aromatic substances, chiefly thymol (about 0.75 per cent). The Laboratory concludes that Listerine is a proprietary name for a solution of well known substances which has little bacteriologic merit. If a physician desires to prescribe a complex weakly antiseptic mouth wash—and this is not to be recommended—he has at his disposal the well known and nonsecret Antiseptic Solution N. F. (Liquor Antisepticus), which like Listerine has very poor antiseptic properties. The bacteriologic experiments show that Listerine will do little more than a weak hydro-alcoholic solution of thymol. On dilution with four parts of water, it shows no bacteriologic action. (Jour. A. M. A., April 18, 1931, p. 1303.)

**VACCINO ANTIPIOGENO POLYVALENTE BRUSCHETTINI AND VACCINO ANTIGONOCOCCICO BRUSCHETTINI.** Not acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Vaccino Antiogeno Polyvalente Bruschetti and Vaccino Antigono-coccico Bruschetti are manufactured by Dr. Prof. A. Bruschetti, Genoa, Italy, and are marketed in the United States by the Pagano Drug Co. According to the label, Vaccino Antiogeno Polyvalente Bruschetti is a bacterial vaccine made from Streptococcus (Hemolyticus and Viridans), Pneumococcus Frankel, Staphylococcus (Aureus and Albus), Staphylococcus Citreus Bacillus Prodigiosus, and Bacillus Coli; and Vaccino Antigono-coccico Bruschetti is a bacterial vaccine made from Gonococcus, Pseudo-Gonococcus, Pseudo-Diphtheria Bacillus, Enterococcus, Staphylococcus (Albus and Aureus), and Staphylococcus Citreus. In 1918 the Council in refusing admission to a number of mixed vaccines announced as its attitude on this class of preparations "that there should be admitted to New and Nonofficial Remedies only those vaccine mixtures for which there is acceptable evidence to indicate that the use of the particular mixtures is rational." Since that time the Council has refused recognition to many vaccine mixtures for lack of acceptable evidence of their worth or rationality. No acceptable evidence for the Bruschetti vaccine mixtures was submitted; accordingly the Council declared them unacceptable for New and Nonofficial Remedies. (Jour. A. M. A., April 4, 1931, p. 1145.)



## BOOK REVIEWS

**CALCIUM METABOLISM AND CALCIUM THERAPY.** By Abraham Cantarow, M.D., Assistant Demonstrator of Medicine in the Jefferson Medical College, Philadelphia. With a foreword by Hobart Amory Hare, B.Sc., M.D., LL.D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College, Philadelphia. Philadelphia: Lea & Febiger. 1931. Price \$2.50.

The author prefaces his book with the statement that the fundamental importance of the inorganic components of the body in the maintenance of normal cellular function, which has for some time been known by physiologists, is now becoming appreciated by clinicians. He has tried to present in a small practical book the factors concerned in the metabolism of calcium, in most treatises a subject too complex for clinicians not trained in physiochemistry.

The foreword by Hobart A. Hare expresses the opinion that the haphazard use of calcium where it is not needed should be discontinued as well as improper doses where it is needed.

The first part deals with the requirement, excretion, blood control, factors in the maintenance of level and partition, and the function of calcium. Part two treats of abnormal calcium metabolism, primary disorders and disturbances in the blood level. Part three has to do with methods of treatment and the pharmacological as well as the untoward effects. Nonspecific calcium therapy of numerous diseases is mentioned.

The book contains 215 pages, no illustrations, but a most extensive bibliography. In fact, the text is valuable as a review of the literature. Whether any of the book represents experiences and opinions of the author is difficult to determine from a perusal of the pages. F. C. N.

**INTESTINAL TOXEMIA. (Autointoxication) Biologically Considered.** By Anthony Bassler, M.D., F.A.C.P., Consulting Gastroenterologist, St. Vincent's, Peoples' and Jewish Memorial Hospitals, New York City, etc. Illustrated with 16 text cuts. Philadelphia: F. A. Davis Company. 1930. Price \$6.00.

The author says he has handled 5,000 cases of intestinal toxemia and has identified 181 different organisms in the stool. He considers the intestinal tract much the most important focus of infection in the body. The occurrence of such diseases as pneumonia, tetanus and endocarditis he explains by asserting that the germs of these diseases pass through the walls of the intestine into the blood stream and on their way from the intestines to the chest or head some organism may stop over for a while in the liver and cause cirrhosis. Even the bacteria in alveolar abscesses and in the crypts of tonsils are, he says, carried there from the intestinal tract. The cause of pernicious anemia is the clostridium putrificus. The Bagen bacillus was discovered by Escherich in 1886; it is not the cause of ulcerative colitis and instead of being a bacillus it is a coccus.

No definite symptomatology of intestinal toxemia is recognized. The diagnosis is based on a "biologic examination," which apparently consists mainly in isolating, culturing, staining and counting the bacteria in the stool.

The only evidences offered by the author supporting his contention of the existence of intestinal toxemia are argument and therapeutic results. Cure

or relief is claimed in the treatment of nearly all diseases, especially pernicious anemia, ulcerative colitis, angina pectoris, myocarditis, hypertension, hypotension, deafness and fits.

The reviewer feels that he is extremely charitable in merely saying that this book represents the viewpoint of a faddist and its value, if it has any, is in illustrating the dangers of specialism. P. T. B.

**THE DIAGNOSIS AND TREATMENT OF BRAIN TUMORS.** By Ernest Sachs, A.B., M.D., Professor of Clinical Neurological Surgery, Washington University School of Medicine, St. Louis. Two hundred twenty-four illustrations, including ten in colors. St. Louis: C. V. Mosby Company. 1931. Price \$10.00.

This book deserves unusual popularity among all physicians. It is not, as are so many of the books on this subject, a theoretical and pedantic rehash of what other authors have seen fit to print. It is rather an intensely personal compilation of facts concerning the diagnosis and treatment of brain tumors which the author has in his own large experience found useful. For this reason the book is valuable to all physicians.

The entire book is written in a leisurely, conversational tone that makes it unusually readable. The chapters on anatomy and physiology and surgical pathology are so clearly written and so consistently well presented that they alone make the book of great value for the clinician, for whom the book is written.

One unique feature is the use of brief case reports to illustrate anatomic and physiologic observations discussed in the text. The manner in which this is arranged makes an interesting method of emphasizing certain important applications of anatomic and physiologic facts. The illustrations are in the main photographic and all are excellent. Considerable space is given to the diagnosis of various brain tumors and one chapter is devoted to the differential diagnosis between brain tumors and other intracranial conditions. In a very detailed manner the author recounts the methods by which one should attempt to make a diagnosis of brain tumor, and he devotes considerable space to the evaluation from a practical standpoint of the various neurological tests now in vogue, especially the much overrated Barany test.

Many other valuable features are present in the book. It is, from beginning to end, including the chapter on operative technic, a very practical, a very useful, a very commendable work. C. B. S.

**HEART DISEASE.** By Paul Dudley White, M.D., Instructor in Medicine, Harvard Medical School; Physician, Massachusetts General Hospital, Boston. New York: The Macmillan Company. 1931. Price \$12.00.

One of the interesting features of this book is the particular emphasis placed on structural changes in the etiology and diagnosis of heart disease. The author states that in recent years too much attention has been given to the physiology of the heart muscle and too little to valvular disease, cardiac hypertrophy, coronary disease, etc. Such a viewpoint cannot be too highly commended.

There is no work on the heart more suitable as a textbook for students than this book by White; and it is neither too technical nor too scientific as a reference work for the general practitioner. There are nearly 200 pages of bibliography.

It is in no way a criticism but merely an impres-

sion to suggest that it would be better for both student and practitioner if less than 43 pages were devoted to roentgenology and more space given to such important subjects as goiter heart, the disturbed mechanism in heart failure, and the mode of action and signs of toxic doses of digitalis.

It is not quite clear why removal of infections in coronary disease should be advised if the etiological relationship is not recognized.

In the opinion of the reviewer, the value of this excellent book would have been enhanced if the author had been less modest in expressing his own views on controversial subjects. P. T. B.

**RESISTANCE TO INFECTIOUS DISEASES.** An exposition of the Biological Phenomena Underlying the Occurrence of Infection and the Recovery of the Animal Body From Infectious Disease, With a Consideration of the Principles Underlying Specific Diagnosis and Therapeutic Measures. By Hans Zinsser, M.D., Professor of Bacteriology and Immunity, Medical School, Harvard University, etc. Fourth edition, completely revised and reset. New York: The Macmillan Company. 1931. Price \$7.00.

It is a rare treat to read this volume. Not only is the subject of extreme interest but unlike most works of a similar nature it never becomes bore-some or tedious. The style and method of presentation are such that the text reads like a romance and once undertaken cannot be laid aside until finished. The contents are scientifically concise yet presented so simply as to be comprehensible even to the uninitiated.

It would be extremely difficult to select the more interesting chapters, each and all are so entertaining. Antigens, toxins, antitoxins, agglutination, precipitation, antibodies (specific and nonspecific), hypersensitiveness, anaphylaxis, and immunities (general and specific), each and all being of the greatest interest in this era of a beginning comprehensive understanding of these phenomena.

It is to be regretted that more medical authors have not the literary style which makes this treatise so instructive as to facts and so entertaining as to presentation. I can recommend the book and unhesitatingly do so to every student of medicine.

The proof reading is marvelously accurate. I noticed only one misspelled proper name. F. I. R.

**TRAUMATOTHERAPY.** The Treatment of the Injured. By John J. Moorhead, B.Sc., M.D., F.A.C.S. (D.S.M.), Professor of Surgery and Director, Department Traumatic Surgery, New York Post-Graduate Medical School and Hospital, etc. With 625 illustrations. Philadelphia and London: W. B. Saunders Company. 1931. Price \$7.00.

It has been a pleasure to look over Moorhead's new book on the proper management of traumatic injuries. I have had his older volume, "Traumatic Surgery," and have used it in a very practical way for several years. I find a great deal of good old material in the new book and a great deal of new material. In injury work we have always found Moorhead's advice to be sound and in general his recommended procedures effective.

The language of this book is so clear that a layman can understand it. Doctor Moorhead apparently has found from his broad experience that simple English words can mean just as much as some of the synthetic words, which, although they may have a very strict technical interpretation,

really impede the progress of even an intelligent reader.

One is bound to be struck also by the fact that this new work in no way departs from the traditional proved treatments, in which statement I refer particularly to the procedures recommended for fractures. Experience sticks out on every page and one cannot help but be especially interested in all that is said about medicolegal subjects, expert evidence, and hypothetical questions.

It seems to me that this is one of the very best books of its kind that it has ever been my good luck to see. I have read it with a great deal of interest and believe that it should be in the hands of all surgeons who do industrial work. It seems to me a worthy successor of the earlier work by the same author. There are some omissions from the earlier work, but none that seem to be of any special consequence and there is a great deal of new material, including the final chapter on the Carrel-Dakin technic. In connection with Dakin's solution I was much interested to note that it is substantially the same thing that was used by the chief surgeon of Napoleon's army, except that the new preparation is milder and less irritating.

This book impresses me very definitely as the work of a man who knows and who speaks from experience. Moorhead, in this new book, is telling the doctors just what he himself has apparently done in the course of one of the busiest injury practices that any surgeon has ever had in this country. I repeat, that it has been a great pleasure to look over the work. S. C.

**TRAUMA, DISEASE, COMPENSATION.** A Handbook of Their Medico-Legal Relations. By A. J. Fraser, M.D., Chief Medical Officer, Workmen's Compensation Board, Winnipeg. Philadelphia: F. A. Davis Company. 1930. Price \$6.50.

It is very apparent that the author of this book has a broad experience in compensation and it is likewise evident, as he states in the preface, that it is not an original work but rather an encyclopedia of opinion.

Here and there bad proof reading has permitted the word "causal" to be spelled "casual." Transposition of two letters could hardly create a greater difference in the meaning of two words in the English language.

The rating schedule does not conform to similar schedules used in this country and differs very markedly from the schedule prescribed by the Missouri law. The Fraser schedule is based on allowances for percentage and loss of earning capacity due to the scheduled injuries. The Missouri act prescribes certain definite allowances for certain injuries and restricts the field considerably against ratings on the basis of the Fraser tables.

I am impressed with the idea that Dr. Fraser, after listening for sixteen years to the evidence of physicians testifying before his compensation board, is running pretty strong on trauma for everything. In a number of his citations I would be inclined to quarrel with him on a lack of distinction between trauma and accidental injury. From his book it seems that practically every condition which afflicts humanity is due to accidental trauma, is suspected of being caused by accidental trauma, or because its etiology is not known may be due to accidental trauma because it must have some cause and no other cause being definitely known therefore it must be trauma.

Dr. Fraser gives his authority at the end of each chapter, which is a very convenient and concise



method of building up a bibliography but his professional bibles seem to be Nelson's Living Medicine and The Oxford System of Medicine.

The Nelson work is standard but it is not generally considered the best authority. The Oxford System of Medicine in many respects is not in conformity with the latest teachings in this country. So it seems that on his major investigation Dr. Fraser has somewhat limited his sources.

It seems to me that plaintiffs' counsel should erect a monument to the memory of Oppenheim, who is quoted frequently in the appropriate section. On page 90 he says that trauma may bring on Raynaud's disease and yet within the last three months I have read in the *Journal of the American Medical Association* of cures of this disease by severance of certain spinal nerves and in cases where there is no history or suggestion of accident.

There is some excellent material in the book, particularly the very clear description of the famous Spanner case. Of course we should not lose sight of the fact that practically all of Fraser's compensation authorities are English and that the rules in this country are often radically different from the English rules. Dr. Fraser's book is of greatest value only when the distinctions and differences between the English act and the Missouri act are considered. I was surprised to note the omission of any reference to carbon monoxide poisoning.

In connection with some of the nervous diseases I miss the names of a good many famous authorities but I really do not know whether the authorities quoted are more modern and have brought the old fellows up-to-date or whether some of the great neurologists have been grievously slighted.

I think it quite worth while as a reference book; it is clearly not a source book. It should be valuable to any doctor who steps into the witness chair in court in a damage suit or before a compensation board. It should be a valuable starting point for investigation in medicolegal cases, especially where there is an obscure condition the cause of which must be determined. It ought to be very useful to attorneys, especially those representing plaintiffs for it does tend to show that every affliction except "original sin" has been attributed at some time or other by some author or other to trauma.

In medicolegal work the lawyers are considerably to blame for much of the medical testimony that is offered. They can often persuade a doctor into testifying about some given condition that since definite etiology is not known may be due to accidental trauma. This is on the theory that if John Smith in Chicago and another John Smith in Kansas City did not rob a bank any of the other nine million, two hundred thousand John Smiths in the United States might have robbed the bank.

Much that I have said is really not to be considered criticism of Dr. Fraser's book but I have tried to outline my idea so as to show the difficulty of writing an unbiased medicolegal treatise on the subject Dr. Fraser has chosen.

On the whole, he has done very well and his book ought to be studied by doctors in whose field it lies.

S. C.

CLINICAL ALLERGY, PARTICULARLY ASTHMA AND HAY FEVER. Mechanism and Treatment. By Francis M. Rackemann, M.D., Physician to the Massachusetts General Hospital; Instructor in Medicine, Harvard Medical School, Boston, Mass. New York: The Macmillan Company. 1931. Price \$10.50.

This monograph is an excellent compilation of the fundamental knowledge, as observed by the immunologist, and the experience of the author with the clinical manifestations of allergy. Rackemann correlates the knowledge obtained in the laboratory with that of his clinical experience. In this manner the etiology, treatment and therapeutic results, statistically presented, of hay fever, of bronchial asthma, of vasomotor rhinitis, of migraine, of eczema and of urticaria are fully described and attention is called to opposing views. He further suggests that other clinical syndromes may be ascribed to allergy as our knowledge of its fundamental nature increases.

The whole question of allergy is a complicated one and much of it is still in controversy so that this book is timely in correlating the present knowledge of the subject. The author is to be commended for bringing the immunologist point of view to the clinician.

C. H. E.

ABNORMAL PSYCHOLOGY. Its Concepts and Theories. By H. L. Hollingworth, Ph.D., Professor of Psychology, Barnard College, Columbia University. Psychology Series. Albert T. Poffenberger, Ph.D., Editor, Professor of Psychology, Columbia University. New York: The Ronald Press Company. Price \$4.50.

This book presents many aspects of mental phenomena in an interesting and practical form.

The fact that the understanding of an abnormality usually solves half its problem is clearly brought out early in the work. The need for a matter-of-fact attitude toward psychologic ills just as we have toward bodily ills is stressed. The author brings home in no uncertain terms the fact that functional disorders are none the less distressing and disagreeable because they are "mental."

Throughout the work Dr. Hollingworth places great emphasis on the process "whereby a partial stimulus is potent to produce such a response as was formerly made to a larger context." This he describes as the essential feature of mental or psychological activity.

The chapters on stage fright and on stammering are specially good.

The views of Babinski, Hurst, Rosanoff, Adler, Rivers and Freud on the psychoneuroses are summarized. The relation of Freud's doctrines to those of Herbart are clearly shown.

The book has a special appeal to physicians who realize that many ills are psychogenic in origin.

R. B.

THE NERVOUS CHILD. By Hector Charles Cameron, M.A., M.D. (Cantab.), F.R.C.P. (Lond.), Physician in charge of the Children's Department, Guy's Hospital. Fourth edition. Oxford University Press, American Branch, 29 West 32nd Street, New York City. 1929.

This book deals with the different influences, such as children's relations with doctors, their mothers, their environment, management and conduct, appetite, sleep, toys, books and amusements. The influence of these factors on the molding of their character and development is considered. The hygiene of the child's mind is as important as the hygiene of his body and both are studies proper for the doctor. This is taken up very well in this book, and much information is offered along preventive and therapeutic lines.

H. M. G.

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### THE EARLY DIAGNOSIS AND TREATMENT OF ACUTE AN- TERIOR POLIOMYELITIS\*<sup>1</sup>

CARL R. FERRIS, M.D.

B. LANDIS ELLIOTT, M.D.

AND

PAUL F. STOOKEY, M.D.

KANSAS CITY, MO.

The resultant paralyses and disabilities of poliomyelitis have been so tragic and our efforts to prevent these sequelae so seemingly futile in the past that any effort to improve our ability to diagnose and treat the disease is worth while. A great deal has been written in recent medical literature about the early diagnosis of poliomyelitis; so much in fact that the physician who discovers a paralysis on his second or third trip to an ill child without previously having made the diagnosis is inclined to be greatly chagrined. The public likewise has been sufficiently educated in matters pertaining to infantile paralysis so that the people expect more of the physician than is frequently demonstrated. Without minimizing in any way the need for constant vigil and an intelligent effort to make early preparalytic diagnoses, let us attempt to evaluate what should be expected of us as physicians.

We assume that there is a large percentage of immune individuals. While it is chiefly a disease of childhood, yet many adults suffer from the malady. Although many investigations have been carried out there is as yet no convincing evidence that the disease is borne by milk, food, water, the fly or the mosquito. We can only conceive that it is transmitted either by human carrier or by human sufferer.

It is the consensus of opinion that many cases of poliomyelitis are unrecognized because the disease manifests itself at times by vague systemic disturbances which are not character-

istic and unless paralysis occurs cannot be diagnosed. Many of the cases that never develop paralysis, the abortive type, may be but little indisposed and go about the community spreading the infection. If the systemic symptoms are so mild at the beginning or of such short duration that the paralysis is the first thing to attract attention, then of course such a thing as diagnosis in the preparalytic stage is impossible. For our purpose poliomyelitis cases can be divided into three groups: (1) Cases with symptoms not characteristic, which never develop paralysis and go unrecognized; (2) cases in which the systemic symptoms are so indefinite that they are not recognized, or so mild that they are overlooked entirely and diagnosis therefore is not made until the onset of paralysis; (3) cases with a fairly characteristic syndrome in which certain signs of meningeal irritation precede the paralysis. Aside from the symptoms of meningeal irritation and nerve affections the picture may be that common to many acute infectious diseases. Here again a meningism may be encountered to make diagnosis more difficult. In addition, otherwise frank cases of poliomyelitis are occasionally encountered which show a perfectly normal spinal fluid. However, symptoms of fever, headache, gastro-intestinal disturbances and irritability associated with stiff neck, stiffness of the back, muscle pains, muscle tenderness or altered reflexes, constitute sufficient presumptive evidence to make a diagnosis and if possible a spinal puncture should be made.

We have no criticism of the physician who has failed to make a diagnosis in the preparalytic stage. The first case in an epidemic will rarely be properly diagnosed before the onset of paralysis, irrespective of symptoms and clinical findings. Many cases must therefore be diagnosed in an epidemic purely on suspicion and although our therapeutic attempts are far from being satisfactory our hope must lie in early recognition and early therapy.

The impression is current in the profession and the statement is made in most articles pertaining to the use of convalescent serum in the

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

1. From the Contagious Service of the Kansas City General Hospital.



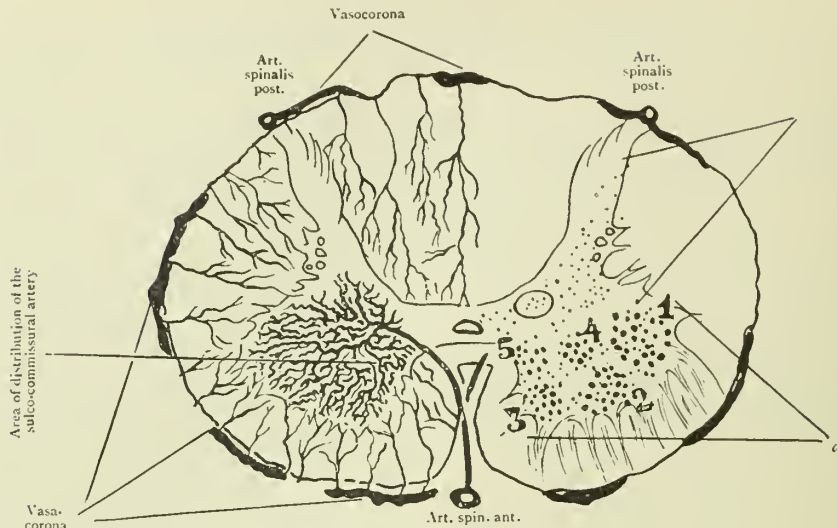


FIG. 6.—DISTRIBUTION OF BLOODVESSELS AND NERVE CELLS IN THE TRANSVERSE SECTION OF THE CORD.

a, Root cells: (1) Postero-lateral group; (2) antero-lateral group; (3) antero-mesial group; (4) central group; (5) postero-mesial group.

From Bing: *Compendium of Regional Diagnosis*, third edition revised, courtesy C. V. Mosby Co.

treatment of infantile paralysis that the intra-spinal administration of this immune serum is the method of choice. Contrary to this view, one reads in the pathological literature that the site of predilection of the virus is in the anterior horn of the cord. This statement is made with full knowledge that the entire brain and cord may be involved. However, the anterior horns of the gray matter are most severely involved and this involvement is considered characteristic of the virus of poliomyelitis. The inability of all observers to transmit infantile paralysis from the spinal fluid is accepted as an established fact. We are then placed in a paradoxical position—we recommend the administration by the intraspinal route of an immune serum into an innocuous spinal fluid in an attempt to neutralize the virus that has a marked affinity for the motor area in the anterior horn deep in the substance of the cord. The ideal method in our judgment would be to attempt to neutralize this virus by the introduction of the immune serum directly into the circulation. Let us briefly consider the anterior horn of the cord, its blood supply and the permeability of the cord in this particular area to spinal fluid.

Reference to the accompanying diagram will show the comparatively rich blood supply of the anterior horns of the gray matter as compared to the rest of the cross section of the cord. Microscopic examination in the acute stage of poliomyelitis shows infiltration of the walls of the blood vessels, especially the adventitia, with some infiltration and cellular

proliferation in tissues outside of the blood vessels. Notwithstanding the fact that there is widespread involvement of the cord, white matter as well as gray, the microscopic pathology, the clinical manifestation of the acute stage and the sequelae all go to show that the brunt of the process is borne by the anterior horns of the gray matter. It is impossible to correlate such changes with any known facts regarding the secretion and absorption of the cerebrospinal fluid or its relationship to the spinal cord. Inasmuch as the cellular infiltration and proliferation center about the blood vessels this comparatively rich blood supply of the anterior horns would seem to provide the key to the distribution of the lesions. It is our opinion that an immune serum introduced into the circulation, either by the intravenous or the intramuscular route, should give a greater therapeutic result than a like serum given intraspinally.

The inability to reproduce poliomyelitis in monkeys by the injection of the virus directly into the blood stream without previous trauma to the central nervous system has led to considerable speculation as to whether the infection is blood borne. However, the widespread pathological evidence obtained at postmortem would indicate that the virus is widely distributed in the human economy.

The literature abounds with reports of the efficiency of convalescent serum. However, we are unanimous in our opinion that this efficiency is at times conspicuous by its absence. We have in several instances used large doses

of convalescent serum intramuscularly and intraspinally in the preparalytic stage and watched our patients go on to disaster. In the bulbar type of case we have yet to see a therapeutic response to convalescent serum. Our ambition is to gain a more gratifying therapeutic result. Irrespective of what may have been the response to the use of convalescent serum by the many physicians who have employed it, hope lies in the fact that convalescent serum when given with poliomyelitic virus to monkeys neutralizes the virus and prevents the disease from developing in these highly susceptible animals.

Convalescent poliomyelitis serum is prepared as follows: In the selection of subjects for bleeding, patients who have had acute anterior poliomyelitis, who have a residual paralysis and who have been fever-free for a period of not less than three weeks, are chosen by preference. Serums collected from convalescent patients on the twenty-first day after the temperature has become normal contain the maximum of immune bodies. Blood can be used however from patients who have had poliomyelitis a great length of time previously. The blood is drawn in the morning before the patient has eaten in order to obtain a serum as free as possible of assimilated food constituents. A large gauge needle, fully 15 gauge, should be used where possible to avoid breaking down of the red blood cells and thereby obtain a clearer serum. Blood is perhaps easiest drawn into a large previously sterilized bottle equipped with mouth suction apparatus as is commonly used in collecting blood for blood transfusions by the citrate method. No sodium citrate is used, however, in this procedure. Quantities of blood are withdrawn consistent with the age and physical condition of the donor. The blood is left at room temperature for from one half to one hour, then placed in the incubator at 37 degrees Centigrade for one half hour, after which it is put in the icebox over night. On the following morning the serum is pipetted into large sterile centrifuge tubes, the paper caps which were applied before sterilization are replaced and it is centrifuged for fifteen minutes. The serum is then decanted to a sterile bottle, enough being saved out or removed for the Wassermann test. The preservative is made by adding one part of tricresol to two parts of ether and 0.8 c.c. of this preservative mixture is added to 100 c.c. of serum. This should be added slowly, drop by drop. All cloudy serums thus obtained are rejected. The serums so prepared are cultured both aerobically and anaerobically. One half cubic centimeter of the serum is put in each of two tubes containing brain broth, after which

a layer of pyrogallic acid is poured on top of one tube to make the culture anaerobic. Observations on these cultures should be made as late as seventy-two hours before considering the serums culturally negative. The serums should be kept constantly in the icebox in 10 c.c. stoppered bottles. From 10 to 30 c.c. may be given at one dose.

Shaughnessy's<sup>1,2</sup> observation that the antibodies present in normal immune serum exceed those present in the convalescent sera is a startling statement. If confirmed, the ideal treatment for poliomyelitis will simplify itself into the transfusion of a large amount of blood from a normal immune, the transfer of course being made in the preparalytic stage or at least in the febrile period. The question as to who constitutes a normal immune should, in the face of Shaughnessy's observation, receive considerable attention. It is an old clinical observation that the percentage of normal immunes is extremely high. While the question of normal immune serum has been insufficiently investigated, the results are such that if one is unable to obtain convalescent serum it would seem justifiable to withdraw 50 c.c. of blood from the normal individual selected as the donor, citrate this blood, and then inject the whole blood into the gluteal muscle.

As far as we are able to ascertain from the literature the results of Pettit<sup>3</sup> of the Pasteur Institute working in the last epidemic of poliomyelitis in France are as yet not available for study. We understand Pettit's serum to be a hyperimmune serum made by the persistent injection of an antigen of poliomyelitis into a horse. Unfortunately this serum is of long and difficult preparation. In a communication presented recently before the Academy of Medicine, Pettit announced that he had succeeded in preparing a serum of equal potency by using the monkey instead of the horse. The preparation requires only five weeks whereas from four to five months are required when the horse is used. The great susceptibility of the monkey to the disease would suggest that animal as the proper medium for the preparation of an immune serum. In the recent literature Howitt, et al.,<sup>4</sup> report the laboratory and clinical application of a hyperimmune serum made from the blood of sheep. While the authors are conservative concerning the therapeutic claims made for this serum, the report of clinical cases is startling. Twelve treated cases without residual paralysis is a therapeutic accomplishment far beyond our attainments. Conversely, we must not ignore Flexner's observation that the antigenic response to the virus is practically nil or of such slight degree as to have no therapeutic value.



The same biologic observation is in a general way true of all ultrafilterable or filterable viruses and caution must be exercised in accepting a hyperimmune serum from any source.

Levaditi<sup>5</sup> observed that 56 per cent of all infantile paralyses develops in blood group II and 14.5 per cent in group III. Group I did not furnish a single case. Nothing was reported regarding group IV. This is an interesting observation and should be further investigated. We have had no experience in blood grouping of the cases that have passed through our hands.

The occurrence of extensive and severe paralysis which quickly clears up or improves rapidly in a few days' time suggests that at least part of the acute manifestations of poliomyelitis may be due to the effect of edema. Accordingly, there have been some attempts made to treat this by administration of hypertonic salt solutions intravenously with suggestive results. Although we have never tried this, it seems logical and one would probably be justified in working along this line or using 50 per cent glucose solution for this purpose.

In conclusion we wish to call attention to the importance of stiffness of the neck, rigidity of the spine, and reflex changes in differentiating poliomyelitis from other acute infectious diseases. Diagnosis must be based on the clinical picture and spinal fluid findings. The leukocyte count and temperature curve are of little value. We believe that treatment in the acute stage should consist of the administration of serum intramuscularly and intravenously and of frequent spinal drainage. In addition, measures to combat edema should be considered. Only by conscientious efforts in diagnosis and treatment can we hope to minimize the tragic sequelae of this dread disease.

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#### DISCUSSION

DR. H. M. GILKEY, Kansas City: Spinal drainage and convalescent serum given early are the best methods of treatment. Normal serum has been recommended. During an epidemic convalescent serum is at times not available and I should like to ask Dr. Ferris how long after an attack the immune bodies are still present in the serum. Also, is the

allergic individual more susceptible to poliomyelitis?

DR. G. WILSE ROBINSON, JR., Kansas City: I would like to ask Dr. Ferris and his associates if any work has been done on the chemical analysis of the spinal fluid. We found recently in routine examination of the spinal fluid in infectious conditions of the nervous system, that where the disease is in the parenchyma of the brain, the brain substance, it will give a rise in the glucose content and the chloride content of the spinal fluid; whereas if the disease is in the meninges there will be a decrease in the chloride and sugar contents. I think it would be a splendid differential point to examine the doubtful cases in that manner.

Another point is that Dr. Spiller, of Philadelphia, is very exacting about the pain. He believes that you practically never get a case of poliomyelitis without some pain. I have not had enough experience to make that statement myself but I think it is at least something that should be considered.

The question of edema that Dr. Ferris touched on I think is an important consideration. There is no doubt that in all infectious conditions of the brain there is an increase in the amount of fluid content, both pericellular and intracellular. The use of hypertonic salt solution will naturally decrease the edema if it is used as an adjunct to the medical treatment of poliomyelitis such as Dr. Ferris has outlined. I think it has been a splendid presentation.

DR. CARL R. FERRIS, closing: In answer to Dr. Gilkey's inquiry, we have no records in regard to the presence or absence of allergic factors in the families of the patients we have seen. I think this observation would be exceedingly interesting and should be further investigated. Neither have we studied particularly the levels of chloride or glucose in the spinal fluid in these cases. There is a partial reason for that. Most of our work is done in the Isolation Hospital somewhat divorced from the main part of our laboratory equipment so that has not been investigated as it no doubt should be.

The thing that I think is of importance for us to consider more than any other at this time is the fact that Shaughnessy's report of recent date states that the normal body fluid contains a greater antibody content than does the convalescent serum. This makes the former observation that perhaps the greatest antibody content of the convalescent serum was present three weeks after the fever subsides in known cases of infantile paralysis erroneous. We are anxious to hear what will come from Shaughnessy's further observations. Peter Bassoe in a recent writing mentions the fact that Shaughnessy's observation is the greatest contribution to the study of poliomyelitis in recent years.

## THE CONTROL OF THE CORONARY ARTERIAL BLOOD SUPPLY IN RELATION TO ANGINA PECTORIS\*

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There is probably no single topic in medicine that has called forth more controversial literature than that of the cause and development of angina pectoris. The ancient literature is dotted with incidents and clinical symptom-complexes which indicate the presence of

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

this disease throughout the centuries, but the modern literature starts with the classical description of Heberden.<sup>1</sup>

In recent decades the tendency has been more and more to ascribe the attacks of angina to insufficiency of coronary blood supply. Thrombosis, coronary constriction, or other causes that reduce coronary blood supply lead to cardiac asphyxiation and to the onset of pain. In 1928 the whole subject was reviewed by Kohn, of Berlin,<sup>2</sup> who asserted that "Angina pectoris is always induced by constriction of the coronary arteries." This is in fact the prevailing diagnosis in the majority of cases. The explanation of attacks by pathology of the aorta or of other regions outside of the heart itself seems to be applied to fewer cases as the years go by.

In this paper I am presenting evidence and argument to support a newer hypothesis, namely, that attacks of angina pectoris may be induced by failure of adequate coronary dilation and consequently relative asphyxiation at times of increased cardiac activity.

My interest in this field was aroused by the individual observations of the clinical cardiologist, Dr. N. C. Gilbert, of Chicago, i. e., that many anginal attacks are associated with physical disturbance, such as mild excitement, increased physical exertion, mild nervous strain, mechanical distention of the abdomen by food or gas, which might induce pressure upon the heart. To test this concept we have made a large number of animal experiments. Intra-abdominal or gastric pressures conceivably may reflexly affect the coordinating nerve control of the heart and its blood vessels. These reflexes influence the ratio between cardiac work and cardiac oxygen supply. Under conditions in which the oxygen supply is inadequate by occlusion, by thrombosis, by external mechanical pressures or by physiological reflex reactions that produce restrictions in the blood supply, acute attacks will certainly arise. Pain, distress and the usual train of anginal clinical symptoms follow. In every physiological review of the symptom-complex one is driven to the conclusion that the cause-and-effect relation starts with heart asphyxiation. Asphyxiation in turn leads both to sensory pain and to cardiac insufficiency.

Cardiac work is self-limited by the amount of oxygen in the blood passing through the heart in relation to the energy output of the heart at the moment. If the heart does more work per minute it must and does receive an

increase of oxygen of equal or greater proportion. Arguing along this line I have re-examined the whole problem of relative control of the coronary blood flow in relation to the control of the work of the heart itself.

Table 1. Showing Cardiac Oxygen Consumption in Relation to Heart Activity (Bainbridge after Lindhart)

	Oxygen Consumption Per Minute in c.c.	Output of Heart Per Minute in Liters	Pulse Frequency Per Minute
Rest	330	4.9	72
Work	606	6.3	86
Work	1171	14.75	92
Work	1759	16.65	128
Work	1880	18.5	130
Work	2407	22.6	148
Work	2750	28.6	

It is now known that the blood flow in the coronary arteries in normal animals is regulated by two sets of vasomotor nerves, an arrangement similar to that of the vasomotor control of the arteries of the body as a whole. The coronary vasoconstrictors, however, do not reach the heart in the usual paths of sympathetic outflow. This was shown by Porter in 1896 when he discovered coronary vasoconstrictors in the pneumogastric or vagus.

On the other hand the coronary dilators are distributed through the same nerve trunks that carry cardiac accelerator nerves from the thoracic segments of the spinal cord to the heart, i. e., by way of the upper thoracic sympathetic ganglia and the cardiac plexus. This pathway was discovered by Maas in 1899. The course of both these sets of coronary nerves has been confirmed by numerous experiments in my laboratory. However, we have not been satisfied to take the presence of efferent coronary nerves alone as adequate explanation of certain types of coronary reaction, but have investigated the newer question of reflex coronary control.

Without going into detail it is enough to report now that we have demonstrated reflex influences exerted on the coronary blood flow through a wide variety of afferent pathways. Of these one should mention first of all the sensory components of the vagus nerve itself. When the central or sensory components of the vagi are stimulated reflex coronary dilation follows. This reaction is readily demonstrated, but the test of possible reflex vasoconstriction by this path is much more difficult and not yet proven. On the other hand, when such general sensory paths as the sciatic or other limb nerves are stimulated profound reflexes occur which affect the blood flow through the coronary arteries. The exact reflex effect depends upon the intensity of the sensory stimulation. In mild stimulation the reaction is usually that of coronary dilation but in more intense stimulation the coronary dilation appears first and the reaction then passes over

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into a deep coronary constriction. This di-phasic type of reaction is obtained on stimulation of sensory paths from both the abdominal and the thoracic viscera. Abdominal coronary reflexes similar to those of the sciatic occur on stimulating the celiac ganglia or major nerve components of this plexus. The phrenics contain an abundant supply of sensory fibers, a fact not very generally known, which upon stimulation cause reflex coronary dilations along with profound increases in respiratory rate and amplitude. The reflex effect of stimulation of phrenic sensory fibers is coronary dilation, usually mild but sometimes very profound.

It is extremely interesting that the vasodilator fibers for the coronary arteries are present in the nerve trunks of the upper thoracic sympathetic ganglia, the nerves which also contain the cardiac accelerator and cardiac augmentor fibers. It seems a wise provision of nature that such a close association should exist. Any condition acting through the general coordinating nervous pathways that augments the heart rate, thus increasing its volume of work per minute, as a rule will produce simultaneous coronary dilation that augments the blood flow through the coronaries and so increases the oxygen supply to this vital organ.

In clinical medicine as well as in physiology it is necessary to keep constantly in mind the effects accomplished by an adequate working correlation between distant regions of the body and the heart. For example, in a pronounced reflex acceleration of the heart the rate may be increased by 50, even 100 per cent with a corresponding or greater increase in the total work done during unit time. Such an increase in heart rate raises the blood pressure by 30 to 50 per cent, which further increases the work of the heart. The physiological literature has shown that the increase in coronary blood volume is normally augmented enough to more than compensate the working heart for the extra work and extra oxygen consumed. The heart of the resting body will discharge about 5 liters of blood per minute and consumes 330 cubic centimeters of oxygen per gram of heart per minute. The reflexly accelerated heart during moderate work consumes 600 to 1800 c.c. of oxygen per minute obtained by an augmentation of coronary flow of from 100 to 150 per cent. Obviously, such an increase in coronary flow in the normal heart supplies more oxygen than the increased work consumes.

If for any cause, either mechanical or physiological, coronary obstruction occurs the balanced relation between output of heart work and volume of coronary blood flow is upset and relative asphyxiation quickly occurs. This

is the physiological basis of the asphyxial theory of the cause of anginal pain and undoubtedly explains the majority of cases. Failure of adequate coronary flow is due to two outstanding causes: (1) coronary spasm in an over-sensitive otherwise normal complex, and (2) failure of compensatory coronary dilator response upon stimulation cause reflex coronary dilations along with profound increases in respiratory rate and amplitude. The reflex effect of stimulation of phrenic sensory fibers is coronactions in a pathological heart. It is the second type that I am emphasizing.

My experimental work has all been on the dog—about 2500 tests. In the dog the coronary constrictor reactions are relatively small and are often difficult to demonstrate. The coronary dilator reactions produce a much more profound change. Quoting maximals, we rarely obtained more than 10 to 25 per cent reduction of flow of coronary blood by constrictor tests, whereas we have observed as high as 165 per cent increase in the volume of blood flow through the coronaries by dilator reactions. I have been driven, therefore, more and more to the conclusion that the crucial physiological reflex coronary reaction is the one controlling the cardiac blood supply—not by vasoconstriction but by augmentation of the flow, namely, by reflex dilation of the coronary arteries.

Both these reaction capacities can very easily be brought into agreement with the coronary asphyxiation theory as a primary source of anginal attacks. The constrictor reaction is direct, clear and readily understood. But the observed facts involving the dilator failures are the mirror images or reverse of the usual concept of the mechanism involved. One may use the failure of dilation to explain the prevalence of anginal attacks associated with coronary sclerosis and other forms of coronary pathology. During coronary sclerosis, and during the period of loss of coronary resilience preceding massive sclerosis, the arteries are less constricted by reflex constrictor nerve impulses, in fact cannot be thrown into spasm because of the rigidity and nonresilience. On the other hand, neither can such vessels respond to reflex coronary dilator reactions hence they do not, in fact cannot, increase the blood supply under the very conditions which greatly augment the work of the heart. In brief, the loss of elasticity and resilience by the coronary dilator reflexes produces relative cardiac asphyxiation which initiates the attacks.

Summarizing, I am advocating and emphasizing the coronary asphyxial theory of anginal attacks but I am presenting a new concept of the physiological mechanism controlling a majority of those attacks which in brief is ex-

pressed as follows: The onset of angina in the typical asphyxial case is more often due to the loss of coronary elasticity and consequent loss of the normal reflex control of the coronary flow by the vasodilator mechanism. This view is justified by the check of the cardiac pathology in a great proportion of anginal cases. It explains the classic case of John Hunter, of Matthew Arnold and his father before him, and it explains well the classic clinical picture of the great authority Heberden. In a word, I support the asphyxial hypothesis explaining the onset of anginal attacks. I accept the theory of reflex coronary constriction as applicable to certain cases but present a new view, namely, that *failure of reflex coronary dilation* under conditions of increased heart activity accounts for the great majority of attacks of angina pectoris.

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#### DISCUSSION

DR. CHARLES W. GREENE, in closing: I do not claim exhaustive information about angina but the major part of that picture, the clinical entity, is pain. The variety of these cases covers every stage from the trivial to the fatal attack and no classification will catch all the types. But one condition is common to all, and that is pain. Also there is in all cases some degree of asphyxiation.

I have had extensive experience in reducing the available oxygen in men who took the air service examination. In one case we carried the reduction of oxygen to the point where the test patient became unconscious, collapsed and stopped breathing. In that particular instance he was revived in a few seconds. The circulation picture was this: in ten seconds the heart rate dropped from 136 to 54; in eight seconds more to 44 and remained that way for several moments. In about twelve seconds the blood pressure was unmeasurable because it was falling too fast to be measured. The unconsciousness was quickly followed by muscular relaxation, apparent collapse and stopping of respiratory activity. As soon as we got out of the army we tried that experimentally and we found that the dog went through the same cycle. But in the dog when the heart rate dropped down we cut the vagus nerves and the heart immediately jumped back to a level higher than originally. I call attention to this because under these conditions there is evidently an intense nervous reaction developed in a few seconds, a vago-spasm showing that when the nerve cells at the center are asphyxiated massive discharge of nerve impulse occurs. This is a general response to asphyxiation. It occurs locally in the heart in anginal attacks of the asphyxial type and probably is the immediate cause of the acute spasms of pain.

### THE PROGNOSIS OF HEART DISEASE\*

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To discuss the prognosis of a disease in which each heart affected presents a problem influenced by cause, progress, the individual re-

action to cause, environment, necessity, and co-operation, would mean the compilation of each physician's experience.

Heart disease is first in the cause of all deaths. Heart disease is first in the amount of damage it does through disability and invalidism. Dr. Dublin has estimated that 2 per cent of the entire population has heart disease. This means that 2,000,000 persons in the United States are involved. The mortality from heart disease is 200,000 annually. The average duration of a case would be ten years.

During this (average) period there is little if any disablement while the reserve force of the heart is ample. A portion of this period must be given over to partial disablement when the reserve force starts to break. A lesser period of total disability when the reserve force is broken.

Cabot says, "most heart disease is amaginary." Those who think or imagine they have heart disease are usually found on careful examination to be free from it. Necropsied cases covering all of the cardiovascular material in 4000 necropsies done at the Massachusetts General Hospital between 1906 and 1919 give the following: (a) Seventy-seven per cent of all heart disease is due to simple hypertrophy and dilatation of the heart without valvular lesions. (b) That rheumatic valvular disease is approximately twice as common as all the varieties of syphilitic aortitis combined, or (c) five times as common as syphilitic valvular lesions (aortic regurgitation). (d) That mitral stenosis existing alone or combined with other valvular lesions is about three times as common as all other rheumatic valvular lesions combined. (e) That mitral stenosis uncomplicated is about twice as common as any other valvular lesion.

The diagnosis of heart disease is too often based upon the presence or absence of a heart murmur while the essential features of heart disease, such as size, rate, rhythm, and the response to effort, are overlooked.

The cardiovascular death rate per 100,000 during the past dozen years shows an increase in the United States of 38; in Chicago 57.2 and amongst physicians 336. Physicians, who are subject to a double strain, mental and physical (this includes driving, climbing stairs, exposure, fatigue), contribute the highest mortality, the increase being nine times that of the whole United States.

When one speaks of the prognosis of heart disease naturally the degree of involvement must be taken into consideration to serve the purpose of this paper, viz.:

1. That group in which the causative factor producing the lesion is active and the damage is progressive.

2. That group in which the causative factor

\* Read in the Symposium on Heart Disease at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



is not active and we have to deal only with the resultant cardiac damage.

3. That group involving the non-constant evidences of heart disease with diagnostic errors.

The question then of prognosis in heart disease is, after consideration of diagnosis, treatment and cooperation, "is the heart failing." If the trouble is found early the instructions given will always prolong life and in the majority of instances give to the patient a normal life.

The disablement that results from a weakened heart and the danger to life that so frequently occurs can only give a grave prognosis if untreated. If an inefficient general circulation is not maintained then we have heart failure of a degree. True, the heart muscle may be healthy with the impediment at some other point, yet the ultimate embarrassment is to the heart with exhaustion. It is true a heart may carry on under ordinary demands with the evidence of a failure when the reserve force is called on. Oftentimes the first complaint of a patient is the limitation of this reserve force. The prognosis in this case depends entirely on the doctor. This exhaustion is only slight at first but by persistent neglect comes to finality.

Confusing as it may be the only difference between the healthy heart and the diseased heart is that in the latter certain disagreeable symptoms are provoked earlier. The patient with the diseased heart suffers a greater degree of exhaustion than the non-diseased heart, yet the mechanism producing the symptoms is identical. If the reserve force is sufficient the individual will only be embarrassed on exertion. To explain, the evidence of heart failure early is entirely a warning. He becomes conscious that the performance of yesterday is an effort today. There is a limit to the amount of work even the healthy heart can do.

Hypertrophy due to any cause means to me an inefficient heart. Prognosis can be made only after the patient's attitude to advice is observed.

Heart pain is an expression of heart muscle exhaustion. Heart block in itself does not kill. The reaction of the heart to exertion is the most valuable guide in estimating the damage done to that organ. This again is but a check on reserve force. If the patient can perform in proportion to age the abnormality may with certainty be assumed to be of little real significance. If he has suffered a complete breakdown, prognosis should not be made until enough time has elapsed to observe the degree of recovery. Patients as a rule recover from their first attack. We can by watching muscle recovery determine the capability of that heart

to renew reserve force. Some patients who never show a complete recovery and have frequent attacks lead fairly useful lives even though the muscle changes are progressive and the possibility of recovery is precluded.

To the individual who has for a long time led a sedentary life, with breathlessness coming on slight exertion, the prognosis is good if moderate exercise is indulged in. The fainting attacks in the young patient even with the irregular pulse while prone is as a rule of no consequence. However, the cause for exhaustion when a murmur or an irregularity exists should always be investigated.

While certain basic facts exist on which prognosis of heart disease is fairly accurate, yet obscure symptoms are met occasionally whose nature we cannot determine. A prognosis in these cases is impossible.

The nervous origin of symptoms determined influences prognosis. Sound and healthy hearts may show a murmur, consequently some other evidence must be obtained to base prognosis in those cases.

The extent of the valvular lesion, whether the causative factor is still active and progressive, the damage done to the auriculoventricular bundle, the necessity of production on the part of the patient, make a no rule prognosis necessary.

As Sir James Mackenzie has said, "Let no murmur be the ground for forming an unfavorable prognosis."

As a conclusion: Before making a prognosis allow enough time to go by to ascertain the ability of a heart to regain reserve force.

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## THE CLINICAL PICTURE OF HEART DISEASE\*

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The clinical analysis of a patient with suspected heart disease usually consists of evaluating the significance of a murmur, interpreting the subjective and objective symptoms of impaired myocardial function and in recognizing the clinical manifestations of coronary sclerosis. Since the symptoms and diseases of the heart muscle have become better understood, it can now be said that myocardial degeneration is a much commoner cause of heart disease than valvular lesions. Whether the trouble is primarily valvular or muscular is largely a question of age. Heart disease acquired under 30 is usually the result of endocarditis or pericarditis; after 30 usually myocardial, the re-

\* Read in the Symposium on Heart Disease at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

sult of hypertension, coronary disease, or goiter. Despite the newer instruments of precision for the study of myocardial affections, the stethoscope is the only instrument that can be used for the study of heart murmurs. Although most murmurs, especially systolic ones, are usually functional, unless a murmur is found valvular disease cannot be diagnosed. The two murmurs that can be considered as always indicating organic heart disease are the basal diastolic of aortic regurgitation and the apical presystolic, or mid-diastolic due to mitral stenosis. The apical systolic murmur is not only the most common but the most difficult murmur to interpret. The relation of this murmur to insufficiency of the mitral valve and the clinical importance of mitral regurgitation in heart failure, constitute the most controversial phases of heart disease.

Thirty years ago Mackenzie said he did not believe that any one ever died from mitral regurgitation. Osler and McCrae in "Modern Medicine" published in 1915, quote the Edinburgh Infirmary statistics which give 585 cases of heart disease out of 1914, or 30 per cent plus, as due to mitral regurgitation. Cabot, in "Facts on the Heart" published in 1926, states that of 1906 necropsied cases dying of heart disease there were only seven, less than one half of one per cent, where death could be attributed to uncomplicated mitral regurgitation. Difficult as it may seem, I will attempt an explanation of these discrepancies: When ventricular dilatation occurs, whether from hypertension, aortic regurgitation, or other cause, the result is a relative mitral insufficiency associated with a mitral systolic murmur. The Scotch apparently attributed the heart failure in such cases to mitral insufficiency which, especially in adults, is a symptom of heart failure and not the cause of it. Most clinicians will agree, I think, with Mackenzie and Cabot that mitral regurgitation only rarely embarrasses the circulation enough to cause heart failure. The exceptions are usually in children. It must be understood that heart failure and heart disease are not the same. However, I want to particularly emphasize that a systolic murmur at the apex when fulfilling the requirements of an organic murmur cannot be ignored. During an attack of mitral valve disease and for a number of years thereafter, a systolic mitral murmur is the most important diagnostic sign of a valve defect. It requires time, usually eight to ten years or longer, for the progressive fibrosis to narrow the orifice so that the findings of stenosis overshadow those of regurgitation.

Regarding the clinical importance and the physical findings of mitral stenosis, there is no

controversy. Why it is four times as common in women as in men is not known. Always due to infection of the rheumatic type, a history of rheumatism is obtained in only about half the cases. The two most important clinical signs are the presystolic, or mid-diastolic, murmur and loud first sound. Both of these signs are well localized just inside the apex and on casual examination may be completely missed. Exercise or coughing is sometimes necessary to bring out the murmur. A distinct apical thrill is helpful but its diagnostic importance is greatly exaggerated. The average duration of life after the stenosis develops, which is usually the latter part of the second decade, is about 20 years. Death occurs from fibrillation and dilatation, septic endocarditis, pneumonia, or embolic phenomena. No disease, not even tuberculosis, is more hazardous for the pregnant woman. With symptoms of heart failure before the sixth month the risk of continuing the pregnancy is considerable. If symptoms of high grade heart failure develop in the last month or two of pregnancy, the risk of cesarean section is less than a difficult labor.

Aortic regurgitation is the easiest heart lesion to diagnose. The one characteristic sign is the diastolic murmur when heard best over the aortic cartilage. The other signs, such as cardiac hypertrophy, low diastolic pressure, Corrigan pulse, and the Duroziez phenomena are usually present and depend upon the degree of leakage and the vasomotor tone. Aortic regurgitation is four times as common in men as in women. Under 40 the cause is usually rheumatism; between 40 and 60 syphilis, and after 60 arteriosclerosis. Aortic regurgitation is not incompatible with a long life, but if the diastolic pressure is below 40 or 50 the prognosis is bad. If decompensation sets in the response to treatment is not satisfactory.

Aortic stenosis, which is a rare valve lesion, is becoming relatively more frequent while mitral stenosis is becoming relatively more infrequent. May this not indicate that the removal of tonsils and other foci of infection lessens the incidence of rheumatic mitral disease and that age and chronic infections are the main factors in aortic stenosis? Pathologists are unable to explain the calcareous ring in the aortic orifice which is so seldom found in the mitral. May this not be explained by a difference in the vascularity of the two valves? The diagnosis of aortic stenosis is justifiable when there is a harsh systolic murmur over the aortic area, a distinct thrill and a feeble or absent second sound. Although usually regarded as the valve lesion associated with a long life, such symptoms as recurrent attacks of pulmonary edema, cardiac asthma, dizziness and fainting spells, frequently occur.



The diagnosis of valvular heart disease from a purely functional murmur is the commonest mistake in cardiac diagnosis. All functional murmurs are systolic in time and most systolic murmurs heard best at the base are functional. The commonest functional murmur is the cardiorespiratory due to the movement of air in the lungs. The chief features of this murmur are that it disappears altogether at the end of full inspiration and becomes quite loud at the end of forced expiration. To diagnose a functional murmur as organic and impose a life of inactivity and semi-invalidism on a healthy individual, is as serious an error if not more serious than overlooking an organic murmur.

*Affections of Myocardium.*—Most symptoms produced by disturbed function of the myocardium are susceptible of clinical interpretation by correlating the complaints and the physical findings. In nearly all instances disturbed function of the myocardium is manifested by dilatation, disturbance of rhythm, or pain due to anoxemia of the heart muscle from narrowing or occlusion of a coronary artery. By the term dilatation is meant incomplete emptying during systole and manifested clinically by breathlessness on exertion and signs of blood stasis, such as cyanosis, cough, enlarged tender liver, and swelling of the feet. This combination of symptoms justifies the diagnosis of cardiac dilatation even though murmurs may be absent and only meager evidence of cardiac enlargement obtained. In the diagnosis of dilatation, the size of the heart is less important than the signs of its being unable to maintain a normal circulation. There may be marked hypertrophy and dilatation, as in aortic regurgitation or hypertension with a perfectly normal circulation, while dilatation occurring without hypertrophy, such as in fibrillation, may cause high grade signs of heart failure without much increase in the area of heart dullness. Therefore, pathological dilatation refers to tone of the heart muscle and not alone to size. I accept the statement made by Mackenzie that cardiac dropsy cannot occur if the tone remains intact. Therefore, dilatation is a symptom of impaired function of the fundamental property of tonicity. A perfectly normal heart seldom dilates even following strenuous exertion. Acute dilatation even of a diseased heart muscle is uncommon and the diagnosis of such a condition is usually wrong. Chronic dilatation causing the clinical symptoms formerly known as decompensation, now called congestive heart failure, is the result of any condition impairing the tonicity of the heart muscle. The most important of such factors in the order named are: overwork from

hypertension, valvular disease or auricular fibrillation, inadequate blood supply or myocardial degeneration due to diseased coronaries, chronic adhesive pericarditis, anemia and the toxins from chronic infections. Of these etiological factors in dilatation associated with hypertrophy, the one which is rather uncommon and usually overlooked is chronic adhesive pericarditis. A typical case of this condition was seen last month. This was a man, 42 years old, who had been in bed three months on account of dyspnea and dropsy. He had a severe attack of rheumatism at the age of nine and following this always became cyanotic and breathless on severe exertion, and since early childhood knew that he had a tender mass in his upper right abdomen. He went through college and had been able to work and earn his living until a few months ago. Examination revealed moderate cyanosis, edema of the feet and moderate ascites. The apex beat could neither be seen nor felt, and percussion indicated apparent fixation of the heart. The left cardiac border was 3 cm. to the left of nipple line and the right 2 cm. to the right of sternum. Both apical sounds were clear and distinct and there was a short systolic murmur. Pulsus paradoxus and Broadbent's sign were both absent and there was no significant inspiratory distention of the neck veins. The pulse was regular, the rate 104, and the blood pressure 130 over 70. From the positive and negative physical findings obtained, associated with a history of effort dyspnea and cyanosis and hepatic enlargement for over 30 years, a diagnosis of chronic adhesive pericarditis was made. An autopsy a week after he was first seen showed chronic mediastinopericarditis, Pick's cirrhosis of the liver, marked thickening of the left diaphragmatic pleura and of the parietal peritoneum. One of the most interesting features of the case was a letter written by Dr. Theodore Ballinger, Jr., of New York, after he examined the patient in 1904 and made the diagnosis of chronic adhesive pericarditis. The diagnosis of chronic pericarditis confirmed by autopsy 27 years later, is apparently a record case.

This very interesting type of heart disease has been meticulously described in a number of excellent articles by Elsworth Smith of St. Louis.

*Disturbance of Rhythm.*—An irregular heart action is a more common manifestation of disturbed function of the myocardium than is dilatation. This may or may not be due to organic changes in the heart muscle. Such irregularities as extrasystoles, paroxysmal tachycardia, auricular flutter and auricular fibrillation are closely allied and all are due to in-

creased irritability of the myocardium. The causal factors in a hyperirritable myocardium may be organic, such as stretching of the muscle in valvular disease or hypertension; lessened blood supply through diseased coronary arteries; anemia, or focal myocarditis. Examples of increased irritability not due to muscle disease are the irregularities that occur from overdosage of digitalis or adrenalin, excessive use of alcohol or tobacco, from hyperthyroidism and, not infrequently, from psychoneurosis and emotional disturbances. Some of the organic or functional causes mentioned will be found to explain most cases of extrasystoles as well as paroxysmal tachycardia and auricular flutter. Under 40 or 50 when the physical findings are negative and the thyroid gland can be excluded such irregularities can be considered functional. After 50 diseased coronary arteries should be considered as a possible cause. Auricular fibrillation, also the result of increased irritability, may cause breathlessness due to deficient arterial systemic circulation and even death without any dilatation whatever. The rapid, irregular contractions of the ventricle frequently cause dilatation from fatigue and overwork but dilatation seldom if ever causes fibrillation. When dilatation and fibrillation coexist it is a justifiable assumption that the fibrillation set in first. The most interesting cases of fibrillation are those occurring in goiter. Heart failure in goiter is intimately associated with auricular fibrillation and seldom occurs without it. In a certain sense, a goiter heart is a functional arrhythmic heart. This is an excellent example of such an agent as the thyroid secretion increasing the irritability of the heart muscle to such a degree that fibrillation develops and even death may occur without the slightest evidence of myocardial disease. When cardiac hypertrophy and goiter heart coexist, the hypertrophy can usually be explained by such preexisting conditions as hypertension, valvular disease, or coronary sclerosis. The most plausible explanation of the goiter heart is that the thyroid secretion becomes fixed in the muscle cells resulting in increased irritability and apparently also increased tonicity. The statement that myocardial failure in a goiter heart is seldom if ever due to disease of the heart muscle is supported by both clinical and pathological evidence.

*Coronary Disease.*—Most of the knowledge obtained within the last ten or fifteen years regarding heart disease and heart failure has been in reference to disease of the coronary arteries. It is now an established fact that 8 to 10 per cent of all deaths occurring after 45 are due to coronary sclerosis. But this is not a dis-

ease limited to advancing years, as many think. There is an authentic case on record of an infant, fifteen months old, dying of coronary occlusion; a number of children with the same affection have been reported, and I have a young man of 31 who has been incapacitated for two years on account of occlusion of a coronary artery and myocardial infarction. Even with no other evidence than these facts, isn't it possible that there is some other etiological factor in coronary disease than senility? The only cause of Heberden's anginal effort pain is an inadequate blood supply to the heart muscle through narrowed coronary arteries. When a clot forms in the artery the result is myocardial infarction which is manifested clinically by an attack of prolonged, severe substernal or abdominal pain, drop in systolic blood pressure, fever, leukocytosis and occasionally a pericardial friction rub. Most patients with angina pectoris live for many years; more than half the patients with coronary occlusion either partially or completely recover. Even advanced coronary disease may exist without pain, the only clinical manifestation if any being heart irregularities, such as extrasystoles, paroxysmal tachycardia, or auricular fibrillation and sometimes loss of tone with dilatation. Cardiac asthma and Cheyne-Stokes respiration frequently occur.

Coronary sclerosis is not only the commonest but much the most serious form of heart disease. A heart may cope for years with the increased work from hypertension or valvular disease, but life depends on an adequate blood supply through the two small coronary arteries. The type of coronary disease that kills is atheroma, which is largely if not wholly independent of the arterial disease associated with hypertension. Syphilis does not affect the coronaries themselves. Enough cases of coronary sclerosis have been reported in childhood and early adult life to indicate that there must be some other factor than senility. After the disease advances to the stage of calcareous deposits in the vessel wall treatment is futile. Increased knowledge of the etiology of atheroma may indicate something in the way of prevention. In my opinion, acute and chronic infections as an etiological factor in coronary disease are not sufficiently appreciated.

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#### DISCUSSION

DR. A. E. STRAUSS, in closing: Dr. Bohan emphasized quite strongly that "systolic murmurs with characteristics of an organic lesion" must be given full import. I do not know just what he means by that statement. I believe that modern physiology has taught us that systolic murmurs of functional origin may have quite the same characteristics as regards time, loudness, distribution and other asso-



ciated phenomena, as organic murmurs. I would not like to see the statement go unchallenged or see too much weight given to systolic murmurs without there being present an adequate etiological history to account for a valvular lesion, or the presence of concomitant signs such as evidence of cardiac enlargement or myocardial insufficiency.

One other statement made by Dr. Bohan was the importance of dilatation without enlargement. I believe this might lead us into considerable difficulty because we are speaking of things of which we know relatively little—tone in cardiac muscle and the like—and clinical experience has shown us that the presence of so-called cardiac symptoms without accessory clinical signs are unreliable.

## TREATMENT OF HEART DISEASE\*<sup>1</sup>

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In a symposium of this type which deals with as broad a subject as heart disease it is obviously impossible to cover the entire field or go into a detailed discussion of even a small phase of the subject. Thus, in speaking of the treatment of heart disease we must content ourselves with an outline review, emphasizing the general principles and clarifying controversial problems.

The most difficult part of this paper is to know how to begin, for there are so many angles from which the subject may be approached. Needless to say, the treatment of heart disease must depend first upon accuracy of diagnosis and then upon a proper interpretation of the significance of that diagnosis, together with an analysis of the indications for treatment and of the methods available. The mere fact that a patient believes he has heart disease or even has had the diagnosis of heart disease made by his physician does not justify the institution of treatment, for the diagnosis of heart disease is made all too freely on inadequate and insufficient grounds. But let us accept the accuracy of the diagnosis of heart disease; even then treatment is not always necessary. Let me emphasize that point—the mere presence of heart disease even of marked degree does not necessarily imply the need of treatment, that is treatment by drugs. Perhaps a modification of one's activities, perhaps simple guidance, perhaps mere observation may be the only requirement. Heart disease should be treated only when there is a definite or probable (sometimes possible) indication, not just because it is heart disease.

As soon as we think of treatment in heart disease our minds immediately frame the picture of our chief defenses—digitalis and rest.

Truly, these have been and remain our chief weapons but a battle is not always won merely by using the staunchest strongholds or the largest guns, and so we must frequently fortify the action of digitalis with diuretics and procure rest with sedatives, hypnotics and opiates. Treatment of heart disease, however, is not quite so simple. As in warfare we adapt our attack to the character of the enemy, his number and aggressiveness, the terrain of the battle, and many other factors, so in the treatment of heart disease we must consider the character of the disease, its severity, its activity, the complications, and the individual who has the affection.

What are the indications for digitalis and how shall we use it? While we are indebted to William Withering who published his treatise in 1785 for the introduction of digitalis to physicians, we have added greatly to our knowledge of its use in recent years.

There are two chief indications for the exhibition of digitalis, (1) decompensation and (2) auricular fibrillation. Perhaps it will be well to amplify that statement. By decompensation we mean the presence or development of symptoms or signs of congestive heart failure from the earliest stage of increasing dyspnea, cough, basal rales, etc., through the extreme state of orthopnea, general anasarca and the like. As already stated, digitalis is not indicated because of the presence of cardiac pathological anatomy alone, but on the contrary it is indicated with decompensation regardless of the pathology present. Also, with the establishment of permanent auricular fibrillation digitalis is indicated, regardless of the state of compensation, in practically all cases for the purpose of slowing the ventricular rate and making all ventricular contractions effective; furthermore, digitalis must be continued in appropriate dosage as long as such fibrillation lasts, that is throughout the patient's life unless the fibrillation spontaneously or by the action of such drugs as quinidine changes to normal mechanism. The exceptional case of the naturally slow ventricular rate in untreated auricular fibrillation, probably due to inherent conduction defects, not needing digitalis merely proves the rule.

The more we know of the action of digitalis, pharmacologic, physiologic and toxic, the better will we be able to use it. Withering working with the crude unstandardized drug clearly understood many of its actions and enunciated a century and a half ago the principles which we still use today, "Let the medicine be continued until it acts either on the stomach, the kidneys, the pulse, or the bowels; let it be stopped upon the first indication of any of these

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1. From the Department of Internal Medicine, Washington University School of Medicine.

effects." He thus recognized the toxic nausea, the beneficial diuresis and slowing of the pulse in auricular fibrillation, not then recognized as such, the production of extrasystoles and heart block as toxic manifestations together with the occasional diarrhea.

In recent years we have been fortunate in having many well standardized and relatively stable digitalis products and in learning through careful study the average tolerance of an individual. Eggleston in 1915 showed that it required 15 c.c. of an average high grade standard tincture of digitalis (1.5 gm. of the dried leaf) per 100 pounds of body weight to completely digitalize an individual. While we must not use this figure as an absolute and unchangeable dosage, it does serve as a guide and much of our modern use of digitalis dates from that work.

Today we are hearing much about the standardization of digitalis by cat units and the United States Pharmacopeia has designated that one cat unit is equivalent to 0.1 gm. of standardized powdered digitalis leaf (1 c.c. of the tincture), the cat unit being the weight of the dried drug in mgm. necessary to kill one kilogram of cat in  $1\frac{1}{2}$  hours. But we need not concern ourselves with cat units; we must, however, be sure we are using a standardized and potent preparation.

Whether we quickly or slowly digitalize a patient will depend upon the exigencies of the occasion, both methods having value. Rapid digitalization is indicated when the patient is in severe decompensation and the time element plays an important part either because of the severity of the symptoms or the danger to life, though many believe that quick digitalization is desirable in all stages of decompensation. However, it must not be inferred from this statement that digitalis is an emergency drug, for this is but rarely the case though it often has urgent indications. With rapid digitalization we must be certain that none of the drugs of the digitalis series have been used in the preceding three weeks, or if used we must take the amount into consideration in estimating the dosage. For a previously undigitalized individual of 160 pounds, whose estimated requirement would be 2.4 gm. of the powdered leaf (24 c.c. of the tincture) the following schedule would provide relatively rapid and yet safe digitalization:

First Dose .....	0.8 gm. (8 c.c. tincture)	1/3	calculated dose
Second Dose, 6 hours later.....	0.4 gm. (4 c.c. tincture)	1/6	calculated dose
Third Dose, 6 hours later.....	0.2 gm. (2 c.c. tincture)	1/12	calculated dose
Fourth Dose, 6 hours later.....	0.1 gm. (1 c.c. tincture)	1/24	calculated dose
Fifth Dose, 6 hours later.....	0.1 gm. (1 c.c. tincture)	1/24	calculated dose
Total, 1.6 gm. (16 c.c. tincture) in 24 hours, 2/3 calculated dose.			

The dose of 0.1 gm. (1 c.c. tincture) may be repeated every 6 hours thereafter until full digitalization has been obtained. For maintenance of full digitalis effect we may use approximately 0.15 gm. of the powdered leaf (1.5 c.c. tincture) daily though this figure is subject to wide variation. The recent trend has been toward the use of the powdered leaf in tablet, pill or capsule form, though the tincture is very satisfactory if we always keep in mind the fact that a drop is not a minim of tincture digitalis, there being in fact an average of  $2\frac{1}{2}$  to 3 drops to the minim.

When rapid digitalization is not indicated there will naturally be a wide variation in the method of dosage, depending upon individual factors such as degree of decompensation, ventricular rate in fibrillation, frequency of visits of the ambulatory patient, etc., but a satisfactory method for this small divided dose régime is 0.1 gm. to 0.2 gm. (1 to 2 c.c. tincture) two or three times daily until digitalis effect or toxic effect is observed, then reducing the daily dose to the maintenance level, 0.15 gm. (1.5 c.c. tincture) daily. Again I must emphasize the fact that a drop is not a minim. A clear understanding of our aims in digitalizing and of the toxic effects of digitalis is necessary for best results.

Aside from the rare use of strophanthin in doses of 0.5 mgm. (not over 1 mgm. daily) intravenously in emergency cases, a use not wholly unattended by danger, we need not consider other members of the digitalis series.

Ranking with digitalis and equally necessary in the treatment of the cardiac patient is rest, varying all the way from simple limitation of activity to absolute bed rest, the latter so valuable in the severely decompensated case. Care in securing and assuring this rest is very important and attention to detail is well rewarded. It is the very exceptional, in fact one might say almost unique, patient who cannot remain in bed, though many attempt to convince the physician that they must sit up in a chair; and herein lies the value of adjunct treatment with sedatives, hypnotics, and opiates. A good rule is to begin the bed treatment (either at home or in the hospital) of the severely decompensated cardiac with a hypodermic injection of morphine (10 to 15 mgm.:  $\frac{1}{6}$  to  $\frac{1}{4}$  grain) for the first two or three nights and then substitute a non-narcotic hypnotic. At certain stages in



treatment the anxiety state of the patient plays as important a role as the myocardial insufficiency and proper sedation is extremely valuable.

Despite the fact that digitalis usually gives us adequate diuresis in most cases there are some patients that need additional diuresis. This is obtained by the use of theobromine sodiosalicylate 1 gm. (15 grains) 3 or 4 times daily, theocin 0.3 gm. (5 grains) 2 or 3 times daily (but only for two days in succession) or the stronger diuretics of recent introduction, novasurol or salyrgan given intramuscularly, or preferably intravenously in doses of 0.5 c.c. to 2 c.c. repeated at intervals of a few days or longer if necessary. The effect of the two latter diuretics is enhanced by the previous ingestion of ammonium chloride in doses of 4 to 8 gm. (60 to 120 grains) daily for several days.

In the past decade we have witnessed the rise and fall and subsequent stabilization of quinidine as a cardiac drug. By its action on the refractory period of muscle and conduction time it has proved of value in regulating certain disturbances of cardiac mechanism, particularly auricular fibrillation and flutter, paroxysmal tachycardia, especially of ventricular type, and to a lesser degree extrasystoles. How often quinidine is indicated in auricular fibrillation is still a matter largely of individual opinion, but certain it is that in something more than 50 per cent of chosen cases in which it is used the fibrillation can be changed back to normal mechanism. Unfortunately, this reversion to normal mechanism is usually not permanent. Quinidine, which is used as the salt, quinidine sulphate, causes toxic effects in some people even with small doses and the patient should always be tested for idiosyncrasy by a small initial dose of 0.2 gm. (3 grains). After that it may be given (usually in capsules) in a dose of 0.3 gm. (5 grains) and thereafter 0.6 gm. (10 grains) *t. i. d.*, if the toxic symptoms of diarrhea, nausea, vomiting, tinnitus, vertigo, headache, weakness or fainting do not supervene. After the mechanism has reverted to normal the quinidine may be gradually tapered off or continued in small rationed doses. In paroxysmal tachycardia of ventricular type associated with coronary thrombosis the prompt use of quinidine sulphate in relatively large and frequently repeated doses may be life-saving.

It has already been stated that digitalis should not be considered an emergency drug, yet we frequently face cardiac emergencies and must deal with them. The common cardiac emergencies, aside from those associated with changes in cardiac mechanism, such as heart block, Stokes-Adams syndrome, auricular fi-

brillation, etc., are acute pulmonary edema, coronary thrombosis, and angina pectoris. For the attack of acute pulmonary edema, characterized by urgent dyspnea, hacking irrepressible cough, frothy blood-tinged sputum, cyanosis, clammy skin, etc., we give immediately a hypodermic injection of morphine grain  $\frac{1}{4}$  with atropine grain  $\frac{1}{100}$ . Keep the patient warm as he is in a state of circulatory collapse; give caffeine sodiobenzoate intravenously ( $7\frac{1}{2}$  grains) if the pulse is small and weak. Venesection of 500-700 c.c. in the robust, plethoric, cyanotic individual is also valuable as is the use of oxygen when available. The use of caffeine sodiobenzoate intravenously, whenever there is evidence of a failing pulse, weak, rapid, thready, seems to be of value and may be frequently repeated to tide over a crisis. The treatment of coronary thrombosis consists chiefly in giving morphine for the relief of pain and to keep the patient quiet, repeating as often as necessary, together with the use of whatever other symptomatic treatment may be indicated. Also, the importance of prolonged bed rest for at least four to six weeks must be emphasized. The use of one or another of the slowly and long acting vasodilators, such as theophylline-ethylenediamine (metaphylline, euphylline, aminophylline, theophylline) seems rational in an attempt to improve the coronary circulation in the nonoccluded vessels.

One could spend the entire time allotted to this symposium on the treatment of angina pectoris, but I shall merely make a few cogent remarks anent this phase of treatment of heart disease: (1) The great importance of going into detail in obtaining the history of the various provocatives of pain with appropriate measures for their avoidance; (2) the importance of a complete explanation of the reasons for giving and the action of the vasodilators; (3) the proper prophylactic and therapeutic use of the long acting and rapidly acting vasodilators, the recently introduced theophylline-ethylenediamine, seemingly being of value in many cases in reducing the frequency of attacks; (4) the proper use of sedatives; (5) the avoidance of tobacco and overeating. In patients unrelieved by medical measures and who have not had an attack of coronary occlusion or marked myocardial damage, cervical sympathectomy or paravertebral injections of alcohol may be considered.

It is not within the province of this paper to discuss the treatment of the various cardiac arrhythmias but mention should be made of the use of barium chloride in doses of 30 mgm. ( $\frac{1}{2}$  grain) three times daily in cases of heart block accompanied by long periods of ven-

tricular asystole or syncope (Stokes-Adams syndrome), also the possible benefit of injections of adrenalin, 1 c.c. of the 1:1000 solution intravenously or directly into the heart in cardiac standstill. Ephedrine may be tried in heart block in doses of 22 to 45 mgm. (3/8 to 3/4 grain) every 6 hours though the results have not been very encouraging. Recently, oxygen has been used in certain cases of heart block with benefit.

I have not mentioned the value of certain mechanical aids in treatment which at times are necessary, that is the removal of fluid from the thorax or abdomen by paracentesis in those cases in which such accumulation causes embarrassment not relieved by digitalis, rest and diuretics. Draining subcutaneous fluid by multiple puncture or Southey's tubes is occasionally helpful but not often necessary. Limitation of fluid and salt intake in the edematous individual is a measure that should not be neglected, and the use of the Karell and Smith diets is often of value, though the diet does not form as important a part in the treatment as formerly believed. Carbohydrates, especially if flatulence is not produced, are valuable.

Finally, a careful consideration of the entire social-economic status of the patient with heart disease must form a part of the scheme of treatment, for the difference between complete success and partial failure may depend upon a proper adjustment of these factors after the measures previously discussed have been provided.

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## MECHANICAL AIDS IN DIAGNOSIS OF HEART DISEASE\*

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The technical advances made during the era of modern medicine have resulted in the development of various types of apparatus which have aided us greatly in the study of heart disease. I wish to emphasize particularly that their chief value has been in giving us a clearer understanding of the normal and abnormal mechanism of the heart action. The practical value of these instruments lies more in what they have taught us about the heart than in their daily use in the actual bedside treatment of heart disease. In other words, if one is able to approach the study of heart disease by comparing the clinical findings of the history and physical examination in various types of

cardiac disorders with the graphic records made by the electrocardiograph or polygraph in these patients, one will arrive at an understanding of the clinical findings that cannot be obtained in any other way. Once having arrived at this understanding, however, the physician may, if necessary, desert the use of these instruments with only a relatively minor loss in diagnostic, therapeutic or prognostic efficiency.

In listing the mechanical aids in the diagnosis of heart disease I am sorely tempted to start with eyes, ears and fingers, because these are by far the most important. The florid puffiness of early hypertensive heart disease, the grayish, sweating pallor of certain types of coronary diseases, the heaving pulsation of the upper sternum in certain cases of aortic aneurysm, cannot be recorded by any instrument. With the convenient and back-saving aid of the stethoscope, the ears alone will make the diagnosis of pericarditis, of mitral stenosis, or of aortic regurgitation and no instrument however elaborate will yield the same information. Practically all the irregularities of the cardiac rhythm may be easily diagnosed by the combined use of the ears, fingers and eyes, provided that one has an understanding of these irregularities. Of equal if not of more importance in diagnosis is the history of the case. Does the family history indicate the inheritance of poor material in the vascular apparatus? Does the past history reveal rheumatic fever, "growing pains," chorea, acute tonsillitis or syphilis? Has the onset been acute or insidious, with dyspnea, exhaustion, palpitation, cough, edema, "indigestion," or pain? Does the pain radiate, does it come on during exercise, is it relieved by rest? Surely the answers to these questions will give more information than any laboratory test.

The real purpose of a cardiac examination is to determine the ability of the heart to do the work required of it. Unfortunately, none of our apparatus gives us direct information on this point. In some cases watching the effect of climbing one or two flights of steps will be helpful. Possibly in spite of loud murmurs and skipped beats the heart is found to function very well. On the other hand, in patients with no murmurs and normal rhythm the stairs may cause pain, or considerable dyspnea. However, stairs can scarcely be listed as laboratory apparatus.

The blood pressure machine may be properly considered as a mechanical aid. It detects the hypertension which leads to the hypertensive type of heart disease, but we must remember that a benign hypertension may last for many years without impairing the cardiac function. The question as to what constitutes the normal

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blood pressure is somewhat difficult to answer. The old rule that the upper limit is 100 plus the patient's age must be discarded. Actually the extreme limits of normal systolic pressure for adults are from a low of 95 to a high of 145, most people falling within the limits of from 100 to 140, regardless of age or size. The range of diastolic pressure in normal adults is from 50 to 90, usually between 70 and 85. A cause of error in determining the systolic pressure in some cases of hypertension is the so-called auscultatory gap. In these cases the systolic sound is heard in the usual way at the systolic pressure, but as the pressure in the cuff is lowered a zone of silence appears, covers a range of from 20 to 40 millimeters, and then the sounds reappear at a lower level and this level may be mistaken for the systolic pressure. This error may be avoided by always raising the pressure in the cuff sufficiently high to reveal the true systolic pressure above the silent gap, and the error may also be detected by checking the auscultatory blood pressure reading by palpating the radial pulse. The sphygmomanometer enables us to detect a pulsus alternans which the fingers may fail to recognize, and the presence of a pulsus alternans indicates serious myocardial disease. Hypotension is not often in itself of real importance and we do our asthenic patients a favor if we do not mention it to them. They will often, forever after being told about it, proceed cautiously with one eye on the pulse. They will be certain in their minds that low blood pressure is more serious than the high blood pressure of which their hypersthenic neighbors boast. On the other hand, the blood pressure of an apprehensive individual at his first visit will often be 20 or more points higher than at subsequent visits. To say nothing whatever to the expectant and apprehensive patient about his blood pressure may serve only to assure him that it is much too high to even talk about, whereas a very small and casual fib about it being normal may enable the physician to put on the cuff at another time without making the patient's heart start thumping. If the fib turns out eventually to have been a mistake, and the pressure is persistently abnormally high, there is plenty of time to talk about it then if necessary.

The roentgen ray is of great value in cardiology. Including a routine fluoroscopic examination of the heart would not be superfluous in a cardiac study. Sometimes it yields surprising and useful information not suspected from the rest of the examination. On the other hand, as in the case of other laboratory

tests, occasionally serious heart disease may be present and yet the roentgen ray will reveal nothing abnormal. The chief information yielded by the fluoroscope concerns the shape and size of the heart and aorta. Certain aortic aneurysms may be detected in no other way. As to the size and shape of the heart, fluoroscopy is of only limited value and for accuracy we must resort to orthodiagrams or teleroentgenograms. The latter are used most commonly in this country and are usually spoken of as six foot or seven foot films. The roentgen ray tubes are placed six or seven feet from the subject in order that the rays may be more nearly parallel and the distortion of the heart shadow lessened. Such films give valuable information as to the shape of the heart, which may be altered by pericarditis, myocarditis, valvular disease or by congenital heart disease. As to heart size, considerable difficulty arises because of the variation of normal heart size. The best we can do at present is to say that when the transverse heart shadow is more than fifty-seven per cent of the internal transverse diameter of the chest, the heart is definitely enlarged.

The polygraph was the first instrument to give us graphic records by which we could interpret abnormalities of cardiac rhythm, but this instrument has been almost entirely supplanted by the more accurate electrocardiograph. I shall, therefore, confine my remarks to the latter instrument. It is, of course, impossible to give in a limited time more than a very general idea of the information it yields. I shall not attempt to go into any details of the interpretation of the records made by the instrument. To those of you already familiar with them such a discussion would be superfluous and to those not familiar with them nothing less than a good many hours of study and discussion would be of any value. The important question is, what sort of information does the electrocardiogram reveal? In the first place, it will accurately diagnose the irregularities of cardiac rhythm. The commonest irregularities, of course, are auricular fibrillation and extrasystoles. In practically all cases these irregularities may be correctly diagnosed with the stethoscope. In the case of extrasystoles, which may be frequent or infrequent in occurrence, the fundamental rhythm is regular and the irregular beat occurs as a premature systole, followed by a compensatory pause. The extrasystoles may occur after each normal beat in which case the rhythm is coupled. Often, the premature beat will occur before the heart has had time to fill appreciably with blood and

no pulsation will be felt at the wrist to correspond with the extrasystole. At the wrist, therefore, it will appear that there has been a dropped beat. Auricular fibrillation results in an absolutely irregular rhythm, almost always easily distinguished by means of the stethoscope. Unless the patient has been receiving adequate amounts of digitalis the rate will usually be rapid, possibly 150 or more beats per minute. At the wrist the count may be much less because beats occurring too soon after preceding beats will not empty enough blood from the heart to cause a palpable pulse, for the same reason that extrasystoles may appear as dropped beats at the wrist. Under digitalis the heart rate will slow, but the rhythm practically always remains irregular. Being slower it may appear to have become regular and the mistake is often made of assuming that the digitalis has stopped the auricular fibrillation. However, if the administration of digitalis is stopped at this stage, the heart rate will gradually increase during the course of some days until, as all of the digitalis is excreted, the original rapid rate is resumed. Therefore it is necessary to continue administering small "maintenance" doses of digitalis after the patient has been fully digitalized. The electrocardiogram will diagnose auricular flutter, and it is often difficult though not always impossible to make this diagnosis without it. Paroxysmal tachycardia, which usually is of auricular origin, may be diagnosed almost as well without as with the electrocardiogram when one has an understanding of the disorder. The onset is abrupt, the rhythm absolutely regular, and the rate rapid and almost unchanging until the end of the paroxysm when the rapid rate abruptly changes back to a slower normal rate. During the paroxysm vagus stimulation may cause an immediate resumption of normal rate.

Heart block is an uncommon disorder due to a disturbance of conduction of impulses from the auricle to the ventricle. The disorder may vary from a very slight delay of conduction, detectable only by the electrocardiogram, through various stages of partial heart block to complete heart block. In complete heart block the heart rate is extremely slow and always in the immediate neighborhood of thirty beats per minute. If one will inspect the veins of the neck a venous pulsation corresponding to the more rapid beat of the auricles can usually be seen. Partial heart block results in the dropping out of heart beats both at the apex and at the wrist, the frequency depending upon the degree of block. The words "heart

block" rise easily to the tongue of those ignorant of disorders of the heart beat. I have often heard the words applied to patients suffering with auricular fibrillation, or extrasystoles, etc. I believe that it must be because there is no danger of mispronouncing the words "heart block," whereas auricular fibrillation might twist the tongue a bit.

Thus, all the disturbances of cardiac rhythm may be accurately diagnosed by means of the electrocardiogram and this is one of its principal values. However, the instrument will give us still other information not obtainable in any other way. It may show evidence of disease or degeneration of the heart muscle, or evidence of thrombosis of a coronary artery. Such changes in the heart are shown in the electrocardiogram chiefly by alterations in the Q. R. S. complexes and in the T waves. The normal electrocardiogram is made by the delivery to and the orderly passage through the heart of an electrical impulse. Any alteration of the structure of the heart by disease or degeneration may affect the orderly passage of the electrical impulse and may therefore affect the electrocardiogram. This is not always the case, however, because we not infrequently obtain normal electrocardiograms from hearts that are gravely diseased. This often disconcerts those not familiar with the test. I have known patients to die of heart disease within a few hours after a normal electrocardiogram was made. Such negative findings, however, do not nullify the more frequent positive findings of the test.

Another use of the electrocardiogram lies in the fact that digitalis causes alterations in its curves. This enables us to use it when necessary as a guide to full digitalization, particularly in cases where the rhythm is regular. In such cases the heart rate is usually not a good digitalis index and to be sure that an effect is being obtained the electrocardiogram may be resorted to.

In summing up then, I wish to say that the electrocardiogram is a valuable aid in the diagnosis of heart disease. No examination of the heart is complete without it. Nevertheless, it is only one factor in the examination and is not to be compared with a good history and physical examination in clinical value. It does the patient and also the instrument a gross injustice to refer the patient to a laboratory for the test and to expect a complete diagnosis from it and to have the diagnosis, prognosis and treatment depend upon this test alone.



ALLERGIC HEADACHE\*<sup>1</sup>

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Headaches have been ascribed to the diet for many years. As early as 1778 Fothergill<sup>1</sup> stated, "there are some things which, in very small quantities, seldom fail to produce the sick headache in some constitutions." He noted that butter, fat meats, spices, especially black pepper, and malt liquor were the foods most frequently followed by headaches. Until recently, the possibility of a specific food causing headaches had not been seriously considered the prevailing opinion being that they were due to the eating of too much fat, or protein, or carbohydrate, or an inability to properly metabolize the amount ingested.

Since Pagniez, Vallery-Radot and Nast<sup>2,3,4</sup> presented the idea that migraine was an anaphylactic manifestation, additional clinical evidence has accumulated which suggests such a relationship. Miller and Raulston<sup>5</sup> pointed out that migraine and the diseases classed as clinical anaphylaxis have periodicity, heredity, temporary disappearance following severe infections, frequent favorable influence by pregnancy and eosinophilia in common.

Based on allergic principles, Vaughan,<sup>6</sup> Rowe,<sup>7</sup> and Balyeat and Brittain<sup>8</sup> have recently reported cases of headache benefited by omitting certain specific allergens from the diet.

This phase of possible allergy was considered in sixty-three patients whose presenting symptom was headache.<sup>9</sup> The patients were subjected to a searching clinical history and the usual routine investigation to determine the existence of the allergic state. If the headache remained in abeyance when certain and specific foods were omitted from the diet, then the attempt was made to reproduce the headache by deliberately feeding the suspected food. While it was very gratifying to prevent the occurrence of headache by eliminating from the diet a food or foods, it seemed more important that the headache could be reproduced at will.

Accordingly, in nineteen (31 per cent) the headache was not modified by dietary manipulations nor could its course be influenced by the deliberate feedings of specific allergen. In the remaining forty-four (69 per cent) the patient was free of headache when specific foods were omitted from the diet but recurred when these foods were deliberately eaten. Thirty of the patients could induce the headaches with more than one food and in the remaining four-

teen the headache followed the ingestion of only one specific food.

Egg was the food most frequently followed by headache and then in sequence followed milk, chocolate, onion, wheat, potato, beef, beans, nuts, chicken, sage, peas, peach, apple, cucumber, pork, celery. Certain foods in a further miscellaneous group were responsible for the headache in single instances.

As a result of deliberate feedings of the cutaneously reacting or the food indicated by the dietetic diary the headache began, in most instances, within three hours after ingestion. The time of onset appeared to be longer in some of them in that the food was eaten in the evening and the headache was noticed the next morning. In none of these instances was the headache severe enough to awaken the patient, and when the headache was induced during the day it seemed in some to be ameliorated by sleep. Occasionally the headache began very shortly after the ingestion of the food and in others the onset was delayed as long as six hours. On subsequent deliberate feedings the time of onset remained the same for each patient.

In most instances the headache was located in the frontal region and sometimes it was specified that it began over either the right or the left eye. In some, the headache was located in the occipital region. The typical progression of the headache was for it to spread over the head irrespective of its original location; in no instance was a hemicrania produced.

As a rule, the headache induced by deliberate feedings persisted at least twenty-four hours and in some instances for a longer period. The duration seemed dependent upon the amount of specific food eaten. It was not unusual for a headache to require four or five days to disappear completely with decreasing intensity when as much as a whole egg was eaten by an egg sensitive individual.

There was no constant description of the headache; it was an ache, a pain, a fullness "as if my head would burst," or a throbbing. The intensity varied and in those in whom it was possible to observe several deliberate feedings of the same food the headache seemed more severe and of longer duration when larger amounts of the food were eaten, so it is probable that the intensity of the headache at any time depends upon the amount of the offending food eaten. It is difficult for an observer to judge accurately the intensity of a headache, but apparently very severe headaches were observed in the group in which the headache could be induced by specific foods, as well as in the group wherein this could not be done, but the clinical impression is that the

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1. Read before the St. Louis Medical Society, April 21, 1931.

more intense and incapacitating headaches were in the group in which specific foods had no influence.

There were no constant accompanying symptoms although when present in any one individual they remained constant for that individual. Nasal blocking and coryza, dizziness, abdominal distress (usually the result of distention), often nausea with occasional vomiting, were the most frequently associated symptoms. Edema about the eyes as noted by moderate swelling of the upper and lower lids of one or both; moderate edema of the nose as noted by increased rotundity; moderate edema of the face as noted by a flattening out of wrinkles or the impress of creases or seams in the bedding, as well as moderate edema of the hands as noted by difficulty in taking off rings, and edema of the feet, were observed in sixteen instances. The edema was diffuse in character and could be detected when palpated by a feeling of increased thickness of the skin, especially on the dorsum of the hands or feet. This condition was described by the patient as an inability to make a fist with ease, a feeling of tightness in the hands, or a feeling that the shoes were tighter than usual. It did not reach the degree of deeply pitting edema. In some instances an increased size of the tongue was noted by marked tooth indentations which were not present during the periods without headache. In these cases there also was a rapid increase of weight during the periods of headache. In some instances this amounted to as much as five pounds and as rapid a loss in weight with its subsidence also occurred.

In this group all gave positive skin tests and a history of allergic manifestations, not including headache in the antecedents, was obtained in 48 per cent. If headache is considered an allergic phenomenon then the antecedent history is positive in 63 per cent. This is in contrast with 15 per cent and 41 per cent, respectively, of positive allergic antecedents in the group in which it was impossible to induce or relieve the headache by dietary manipulation. The high percentage of positive skin tests is accounted for by the fact that tests were interpreted as positive when they persistently differed from the control tests; and when this difference was slight they were recorded as plus minus or one plus. This was done deliberately because clinical experience resulting from deliberate feedings indicated that some of these doubtfully positive tests were of decided significance while others were not, so it was not known where else to draw the line. The largest number of positive reactions was obtained in those cases where nonseasonal or seasonal

vasomotor rhinitis occurred as complications and were positive to the inhalant allergens.

Of great significance is the occurrence of other allergic manifestations in the patients themselves in forty-three of these forty-four cases (97 per cent). These manifestations were always multiple. The nasal manifestations occurred most frequently and were either nonseasonal or seasonal vasomotor rhinitis; then in sequence the skin manifestations (urticaria, angioneurotic edema, and eczema), then the abdominal manifestations such as pain, diarrhea, nausea with or without vomiting, and finally asthma. The most frequent clinical syndrome was headache preceded by blocking of one or both nasal passages, with colorless nasal discharge and followed or often accompanied by abdominal discomfort and nausea with or without vomiting.

#### CONCLUSIONS

It is possible to induce headaches in certain individuals by the ingestion of specific foods and for them to be free of headache when these foods are not eaten.

These individuals more often than otherwise exhibit the criteria for allergic individuals.

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## TUBERCULOSIS IN CHILDREN: ITS DIAGNOSIS AND PROGNOSIS\*

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### INFANCY THE PERIOD OF GREAT SUSCEPTIBILITY TO TUBERCULOUS INFECTION

John Fiske made a distinct contribution to medicine as well as to evolution in his theory that the period of infancy in man is 21 years in the male and 18 years in the female. It is undoubtedly due to the immaturity and the developmental changes of body cells and tissues of this period that parasitic disease, and especially tuberculosis, make such an impression upon the growing child.

With the gradual development of tissues and

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organs during childhood and adolescence, the reason for Fiske's theory is evident and it is but reasonable to believe that the chemical, physical and pathological reactions in early childhood would be materially affected by bacteria, and specifically by tubercle bacilli, once they gain entrance to the circulation and reach the undeveloped cells of the as yet nonsensitized human organism.

As stressed by Krause,<sup>7</sup> and as well known in the development of the lymphatic system in the first two years of life, the cellular and fibrous tissue of the lymph glands are undeveloped and have slight structural form thus permitting bacterial infection, especially tubercle bacilli, to pass easily through and become distributed and localized in various susceptible tissues of the body. In the presence of infection by the tubercle bacilli in the first two years of life, though noted more especially during the first twelve months, meningitis, acute bronchopneumonia and miliary tuberculosis are common, ending in a high mortality. It was for the prevention of such malignant infection in France and other older European countries that Calmette and Guérin introduced the B C G vaccine, an attenuated and nonvirulent culture of tubercle bacilli probably a true prophylactic against tuberculous infection of early childhood. [The serious accident in Lübeck, Germany, in which such vaccine was used with a sequel of casualties, though with evident contamination, was a serious setback to medical experimentation, but should not in any way limit further scientific research or the hope that such therapy may be proved practical and as safe as any other scientific procedure, during the very vulnerable first two years of infancy.]

When we pass over the first two years of childhood and its undeveloped lymphatic system and reach the children aged from 3 to 8, it is found that their lymph nodes, as present in the mediastinal and tracheobronchial areas of the thorax, are fully developed and functioning against bacteria and their products. The cellular and fibrous elements now are mature and full-blooded, serving specifically to halt and filter out bacteria, such as tubercle bacilli, thus preventing their distribution to other more important body tissues, and by the process of fibrosis and calcification holding many of them inert and impotent.

It is here that the role and great value of the lymphatic system in the development and protection of early childhood are demonstrated, when children are physically adjusting themselves to their environment. This is the age and period of a child's life and growth when immunization is developing against bacteria and their toxins. Myers, of Minnesota, de-

clares that "experience and observation of past years demonstrate that children, from 4 to 10 years, tolerate tuberculous infection well." Such is the opinion from observation of a large number of children from 4 to 12 at the Missouri State Sanatorium. The removal of infected children from constant contact with open pulmonary cases at home is usually the beginning of improvement in weight, temperature and tuberculin reaction. On removing an infected child to favorable surroundings, increased resistance or evident immunity begin to manifest themselves. The developing lymphatic system is undoubtedly the assisting and protecting factor.

As intimated, the stages of puberty and adolescence, in the infancy of a child, are another most critical and vulnerable period, in the reaction to bacterial invasion. It is here that Hetherington, of Philadelphia, gives added weight to Fiske's theory on the prolonged infancy of childhood, by saying that "it is generally recognized that between 12 and 18, the most serious type of tuberculosis begins to make its appearance, and more frequently in girls than in boys." In the important metabolic processes of adolescence the body energy is demanded for growth of tissue and development of function, as well as to fight bacterial infection and disease.

#### THE PREVALENCE OF TUBERCULOSIS IN CHILDREN

The experience of phthisiologists the world over demonstrates the early and protracted incidence of tuberculosis throughout childhood. In Europe Calmette and others have revealed the high rate of infection and mortality in the first two years of life. Kuss and Binswanger<sup>7</sup> make claim that from 1 per cent to 6 per cent of all children dying from birth to 3 months die from tuberculosis. Myers<sup>7</sup> asserts that "there are more deaths from tuberculosis in the first year of life than in any other one year of man's allotted three score years and ten." Chadwick, in his wide experience, says that "more than one-half of the adolescent cases of pulmonary tuberculosis have had a preceding childhood type." The numerous cases of calcified nodes found in the hila and parenchyma of children in each year from 3 to 15 demonstrate how early and in what large numbers children are infected throughout childhood.

A recent careful survey of 4000 school children in Philadelphia<sup>1</sup> showed the same frequency of tuberculous infection as was common in European cities 20 years ago. Among children growing up in families with open cases 80 per cent give a positive skin reaction before the 5th year. On the other hand, because of

the common freedom and association of children with open and ambulatory cases in school, church, on the streets and in public places, it can be demonstrated that all children will react to a tuberculin test before the 20th year.

Chadwick's intensive work in Massachusetts, where he recently completed the examination of 100,000 school children, revealed a positive reaction to tuberculin in 28 per cent of the cases tested by the intracutaneous method.<sup>2</sup>

Only recently members of the Missouri State Sanatorium staff visited the public schools of a neighboring county seat. Forty children in such schools were submitted to a questionnaire and physical examination. Nine of these with either physical signs or definite history of exposure to open cases of tuberculosis, were set aside for tuberculin test and roentgen ray study. Six of such group gave a positive Mantoux reaction to 1/10 mg. of old tuberculin; and the whole nine revealed positive roentgen evidence of existing or previous tracheobronchial or parenchymal disease.

In families with open cases, it is accepted that where contact continues 10 per cent of children exposed will develop clinical tuberculosis, 22 per cent be found with latent tracheobronchial disease and 4 per cent reveal latent apical tuberculosis.<sup>3</sup>

When it is recognized that 50 per cent of the patients coming to our sanatoria are advanced and open cases, and have been so and in contact with susceptible young people for from six months to two years, the reason for the continuance of tuberculosis is not difficult to account for. At Mount Vernon we have dozens of families represented in which there are from one to six contact cases, children with infection from a common open source, often a mother or an older brother or sister. We have one group of six children, 4 girls and 2 boys, from 4 to 15 years of age, offspring of a mother now an advanced case in Koch Hospital, St. Louis. Massive infection had been going on for years. The early discovery and immediate isolation of the open cases of pulmonary tuberculosis are among the most important factors in the whole problem of tuberculosis control.

The facts cited above are common to the whole state of Missouri, to city and rural district alike.

Missouri is one of 12 states included in the Mississippi Valley Sanatorium Conference Area. During the year 1929 there were within this area 23,592 deaths from tuberculosis. Missouri's quota was 2,702, a mortality of 74.2, the highest rate for the year of any of the 12 states. It is estimated that for the year 1930

there were 25,000 cases of tuberculosis in Missouri.<sup>4</sup>

#### CLASSIFICATION OF CHILDHOOD TYPE OF TUBERCULOSIS

There are two quite distinct varieties of tissues involved in the pathological processes of tuberculosis of children; first, the glands of the lymphatic system, primarily the tracheobronchial nodes and, second, the pulmonary parenchyma, the latter the common site of adult tuberculosis.

The Children's Committee of The National Tuberculosis Association, Dr. Chadwick, of Detroit, chairman, recommends the following general and structural classification of childhood and adolescent tuberculosis: Class 1. Parenchymal tuberculosis. Class 2. Tracheobronchial tuberculosis. Class 3. Combined type; combination of the two preceding classes.

Class 1. The parenchymal type is subdivided by McPhedron and most phthisiologists into some six subdivisions according to the location and character of the tuberculous process, viz.:

(1) Focal lesion in the parenchyma; a caseous or calcified nodule, usually an isolated and circumscribed gland.

(2) A consolidation of a lobe or a wedge-shaped area of a lobe, often subclavicular; a progressive process with unfavorable prognosis.

(3) A consolidation of a lobe or a wedge-shaped area of a lobe (the base being at the periphery); of a retrogressive type and benign. Rest usually effects a cure.

(4) Diffuse childhood type, fulminating in some adults and developing into an acute bronchopneumonia.

(5) Miliary tuberculosis of childhood, usually running a rapid and fatal course.

(6) Apical adult type of infiltration of childhood and adolescence. Such is usually a progressive variety, with marked exacerbations and extensions, often going on to cavity formation, chronic invalidism and eventual death. It is to be noted however that the early local involvement in the apex makes it very susceptible to treatment by rest if such be instituted early and maintained.

Class 2. The tracheobronchial type involves primarily the tracheobronchial glands and, according to the reaction of such glands to the irritation of the tubercle bacilli, caseate and break down or heal by calcification. Hence they are subdivided into two subheads, (1) the caseous and (2) the calcified.

The simplicity, definiteness and comprehensiveness of the above classification, now being recommended and quite generally adopted by



national and state tuberculosis associations and by schools and authors, urge a serious consideration of its adoption and careful study by all institutions accepting children with tuberculosis, and especially should such classification be studied and used by the profession of the state. It is not sufficient to diagnose a tuberculous infection in a child. Its improvement or cure depends upon a proper classification and the institution of the indicated treatment for the specific type existing.

#### THE CHILDREN'S DEPARTMENT OF THE STATE SANATORIUM

At the State Sanatorium at Mount Vernon, Missouri, there is a combined preventorium and sanatorium for the care of tuberculous infection in children from 4 to 15 years of age. Such children come from all over the state, the cities, such as Kansas City and St. Louis furnishing their quota, though many come from the small towns and rural districts.

In recording the history of these children a great deal of data is collected, yielding information bearing upon the etiology, early course and progress of the infection or the active disease, as the case may be.

#### ANALYSIS OF CHILDREN'S DEPARTMENT, MIS- SOURI STATE SANATORIUM

*Sex and Race.*—In the past two years there have been, with admissions and discharges, something over 100 children received in the children's department at the state sanatorium. The girls in number are usually ten per cent in excess of the boys. Mexican children are received with the white children and represent about one sixth of the whole group. The Negroes have their own separate building and it is a coincidental fact that the Negro children equal the Mexican children in number.

*Contact With Family or Open Cases.*—In a careful analysis of the obtainable family histories of 104 children, 61 girls and 43 boys, there was proof of positive contact with advanced family or other open cases in 57 instances. At the same time 39 children gave a negative family history and were ignorant of contact or exposure to open cases.

*The Tuberculin Test.*—Upon these 104 children there were made on admission and have been at regular three month intervals since then a Mantoux, or intracutaneous tuberculin test. This test for the presence of the end product of infection of tubercle bacilli in the circulating stream of the suspected individual is according to the formula and method of the Henry Phipps Institute, Philadelphia. One tenth (0.1) c.c. of old tuberculin is diluted and graduated serially in strengths of 0.01 mg., 0.1

mg. and 1 mg.; and if necessary for the test a second 1 mg. Beginning with the weakest dilution, or 0.01 mg., each injection is carefully introduced into the outer layer of the epidermis of the upper forearm to avoid absorption by and distribution into the general circulation. Such injection and its local reaction are carefully observed at the end of 48 hours. If there is no reaction to the 0.01 mg., then the next stronger dilution or 0.1 mg. is injected and its reaction observed at the end of a second 48 hours. Such injections and observations are observed if required up to and including a second 1 mg.

The typical reaction is a swelling or edema at the site of the tuberculin injection. Such edema may be and usually is the center of an erythema of varying extent, often several centimeters in diameter. The reaction, i. e., the edema or local swelling, is defined in accordance with the diameter of such edema in mm. or cm. If 10 mm. or less such is termed one plus; if 10 to 15 mm. two plus; if 15 to 20 mm. three plus; if larger and with epidermal necrosis it is four plus. Such intracutaneous tuberculin test today is considered and accepted as standard and diagnostic for the presence of a tuberculous infection. It is not proof of either the degree of activity of tuberculous disease nor of the location. It may with carefully collected data be diagnostic of recent or massive infection. In highly positive reactions it often is.

The presence of the edema is imperative for a diagnosis. In only a few conditions, such as following certain acute infections (as measles) and in very toxic tuberculous patients do we have negative results to such test when tuberculosis exists.

Out of the group of 104 children at the sanatorium 92 have given a positive tuberculin reaction, 10 a negative reaction. Forty-six were one plus, 26 two plus, 14 three plus and 3 four plus, the last group having extensive edema and necrosis of swollen area. In eleven of the patients having 3 and 4 plus tuberculin reactions the family and contact history demonstrated close and frequent relationship with open cases, giving good and sufficient cause for massive infection and imperative reason for recommending the early and arbitrary separation of children from all family contact and open cases of tuberculosis.

*The Roentgen Ray a Diagnostic Means.*—To accompany or succeed the tuberculin test there should be, and is resorted to at Mount Vernon, a roentgen ray examination of every child. Such yields to the examiner data which can be secured in no other way. A roentgen ray of the chest frequently if not usually localizes the

disease. It may define it in extent and character.

From the roentgen ray findings of the 104 cases under consideration, 23 were classified as belonging to parenchymal tuberculosis (class 1); 75 as tracheobronchial or hilum tuberculosis (class 2); 4 as the combined (class 3); and one as unclassified (class 4), probably a case of bronchial asthma in a girl 10 years of age. The diagnostic value of the roentgen ray with physical findings slight or absent cannot be overestimated. Widened hili or pulmonary roots with enlarged glands and nodes possessing any degree of calcification, with early and slight infiltration of parenchyma, yield to the roentgen ray when abnormal physical signs, such as rales, diminished voice sounds or impaired resonance, may be absent.

*The Activity Test.*—The activity or sedimentation test as perfected by Cutler is performed upon all patients as a routine at the sanatorium. It is a method based upon the fact that the red corpuscles in case of tissue and cellular destruction from any disease, *absorb* some of the broken down tissue elements circulating in the blood and thus have their specific gravity increased. Whether from glandular or parenchymal activity, as in children, this test is found of distinct prognostic value. Many children with only tracheobronchial or glandular involvement, rise in temperature, fatigue and with or without loss of weight, will show an increased sedimentation index which will remain or increase if no change is required in the habits of the individual. On the other hand, it is a noticeable fact that on such patient being removed from exercise and put to bed two things usually follow, i. e., a fall in the temperature and a decrease in the sedimentation index. Cause and effect are easily demonstrated.

*Physical Signs.*—As brought out and accentuated by many clinicians and observers, there are few physical signs elicited from the average case of tuberculous infection in children. Excepting in the adult type with distinct parenchymal involvement, few if any diagnostic signs appear. In the large majority of cases the tracheobronchial glands are affected and save when massively enlarged do not yield either auscultatory or percussion changes justifying an opinion of abnormality. The Despine's acoustic changes in pitch of whispered voice heard along the spine and an apparent increase in paravertebral dullness may suggest disease, but they are frequently present with negative tuberculin and negative roentgen ray evidence thus not offering any diagnostic value by themselves.

As already stated, 23 out of 104 cases at

Mount Vernon have been diagnosed as belonging to class 1, parenchymal, and 75 to class 2, tracheobronchial type of childhood tuberculosis. This shows that less than one fourth of our cases reveal roentgen ray evidence or physical signs justifying a diagnosis of parenchymal or lung involvement. However, many of the cases proving to be tracheobronchial in type are referred and reported to us as having rales and other physical signs.

Out of the 104 classified cases at Buford Cottage, the children's department, physical examination failed to elicit physical signs in 73 of the positive cases. These all gave positive tuberculin and positive roentgen ray findings in hilar enlargement, tracheobronchial involvement and definite signs of calcification in hila or parenchyma.

#### OTHER INFECTIOUS DISEASES AND TUBERCULOSIS

It is recognized by all that many children with the infection of tuberculosis have preceded or accompanying it other and numerous infections. Not all; but some infections, as noted in the case of an intercurrent measles, may activate the tuberculous process. The history of epidemic influenza in many sanatoria would lead one to question its influence upon the process in chronic tuberculosis. But when one considers the many weeks and months of childhood with continued fever, involvement of blood and tissue changes it is surprising that resistance is maintained as well as it is.

Among the 104 patients listed in this group there were 239 distinct infections recorded. Of these, 68 had measles, 46 whooping cough, 41 had mumps, 25 recurrent attacks of tonsillitis, 18 influenza, 21 chickenpox, 11 scarlet fever, 7 diphtheria, 5 pneumonia, 4 smallpox, 3 malaria.

Measles, whooping cough, mumps and scarlet fever are associated etiologic factors in some of the sickest of our children, leading to the inference that they may have contributed toward lowering resistance or aggravating the tuberculous process.

*Measles as a Complicating Infection.*—In the winter of 1929 an epidemic of measles broke out in the Buford Cottage, brought there by a tray-boy. Among some 15 cases was a Mexican girl 4 years old who contracted the disease. It happened that a previous roentgen ray of her chest revealed a widened right hilus with enlarged gland extending out into the middle lobe. Within a few days there were associated a rise in temperature, physical signs of rales and impaired resonance below the right clavicle and through the middle lobe. A roentgen ray revealed a large wedge-shaped area of density extending out from the hilus to the chest wall



and below the clavicle for some three inches, having undoubtedly some relationship to the hilus involvement mentioned, and was reactivated by the infective measles. While we usually think of infection and drainage being downward and toward the trachea and bronchi there is much evidence justifying the to and fro or bellows action of lymphatics and blood vessels during the double respiratory function of the lung. It is assumed in this case that the infection was transported from the right hilar gland to the middle lobe and its periphery by the to and fro motion of the structures involved in the respiratory function.

*Sputum Findings.*—The tracheobronchial cases of childhood type of tuberculosis being largely in excess and there being but slight cough and expectoration associated, little sputum is obtained. It is of course the parenchymal cases (class 1) which yield sputa. Of the 104 cases in the group described 9 yielded sputa positive to tubercle bacilli. Four were from far-advanced cases among the Negro children. Stomach washings or bronchial search were not resorted to, and it is appreciated that some sputa other than reported may have been positive.

*Mortality.*—The periods of high mortality in children are during the first two years of life and late in adolescence. At Mount Vernon our children are from 4 to 15 years of age. During the past two years there have been 5 deaths—a white girl of 15 who entered with far-advanced tuberculosis and marked extensions and cavitation lived for nine months; a Mexican lad, aged 8, who developed an acute meningitis of short duration, and 3 Negroes, two of them girls, aged 15, and one a boy, aged 12, each with far-advanced tuberculosis and grave complications. It is recognized and accepted that the mortality among Negroes is much higher than in the white race. Parenchymal tuberculosis among Negro children is usually of the progressive and malignant type and the mortality is very high.

#### TREATMENT AT MOUNT VERNON

Treatment of the childhood type of tuberculosis depends first upon a correct diagnosis and the proper classification of the individual case. But, after all is said and done, the protection and support of the heart and circulatory system by rest are the important means at our command. At Mount Vernon it is given first consideration, be the case tracheobronchial or parenchymal. Rest periods mark the day for every case, the active parenchymal children having only bathroom privileges and change in position under direction. Surgery as indicated is resorted to as in adult tuberculosis,—pneumothorax, phrenicotomy and the estab-

lishment of drainage where indicated,—the great point being that proper and sufficient rest can be obtained in some cases only by resorting to the knife.

Medicines are used only occasionally and then only to meet acute symptoms, such as pain, faulty digestion or inactive bowels. Specific medication in tuberculosis today is largely empirical.

In addition to rest, there must be furnished two other things to wage a winning fight, food for the physical needs and a stimulus for the mind. It goes without saying that to meet the waste of tissue from the disease and to add weight a well balanced and nutritious diet is necessary. And such should be furnished every patient with tuberculosis. Likewise must the mental capacity and needs of the individual be recognized and considered. At Mount Vernon a public school of eight grades is conducted, accredited by the state, and eight pupils are graduating next week preparatory for high school.

Recreation, amusements, moving pictures, the radio, contact with nature and occupational therapy all have their part on the mental side and contribute distinctly toward the physical well-being of every patient. Above all is the recognition of the higher and spiritual side of mankind, and these qualities are not disregarded in striving to raise the resistance and even to immunize human tissues against the arch foe, the tubercle bacillus.

#### CONCLUSIONS

In America today the medical profession and organized society have it within their knowledge and power to lessen materially the incidence, the virulence and the continuance of tuberculosis. The history of tuberculosis and the epochal discoveries by pioneer workers yield to society facts and opinions with means for prevention and control that should be efficiently and effectively used.

It is a fact that all of our knowledge is not being used in its prevention; nor are the means for its control furnished by the state nor used by the profession to the degree that they should be.

As portrayed by speakers today, it should be accepted and stressed that we have a childhood type of tuberculosis as well as an adult type. The means at our command are such that every case existing from early infancy on should be diagnosed as of tuberculous origin and properly classified, with treatment instituted at the earliest possible moment. Furthermore, society must accept that there is but one way to get rid of or to lower the incidence of the infection, namely, by locating every open or family case of tuberculosis and practically isolating

it; this to prevent contact. Tubercle bacilli are transmitted by contact of an open infected patient with an uninfected susceptible individual, usually a child.

Open cases of tuberculosis should be no more tolerated in modern society than is yellow fever or bubonic plague. Progress along these lines is being made in certain of our states. Missouri should rise to the occasion. We have the instruments and the personnel. It is a matter for organization, careful study and constructive legislation to use the knowledge and means at our command.

Through the cooperation of three already existing state organizations, namely the State Medical Association, the state tuberculosis association and the state board of health, we have groups with knowledge and constituted authority to initiate the needed work and to hasten the solution of the problem involved.

With the state and its several counties thoroughly organized and working under a small but authorized state commission, the work could be unified as to diagnosis and the best methods for prevention, control and treatment. Thus Missouri in a very short time would have an accurate census of its cases of tuberculosis and a practical system established for the control and care of every case.

It is not within the purpose of this paper nor is it the province of the speaker to make specific recommendations, but it is urged upon the profession of the state that they take a greater general interest in the problem of tuberculosis and aid in locating every case of tuberculosis within their counties and respective townships and properly classify the cases found. Then to support a movement for the establishment of tuberculosis nurses in counties and where the population justifies preventoria and sanatoria for tuberculous patients. Illinois, Wisconsin and other states of this sanatorium area are intensively organized. Missouri should be.

Tuberculosis as an infection or disease is easy of diagnosis. Greater care should be exercised in determining its presence. Whether in a child or an adult its chronic character and the great limitation placed upon the one affected should be stressed. The prognosis of the individual case and the solution of the problem of tuberculosis as a social disease are going to depend upon a continuous and practical program instituted against tuberculosis. The speaker feels sure that this organization and its members will assume and meet their responsibility.

Missouri State Sanatorium.

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#### DETERMINATION OF ACTIVITY IN TUBERCULOSIS\*

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As a result of the intensive educational campaigns conducted by tuberculosis societies, life insurance companies and other agencies, the public is rapidly becoming tuberculosis-minded. People are learning the value of periodic examinations in order that they may remain well. Social agencies, health departments and the medical profession are all intent on finding the cases of active tuberculosis in order that the disease may be eradicated. All this has its effect in bringing the questionable cases to the physician and he must meet the challenge.

An exact definition of the line separating activity from inactivity with such an insidious disease as tuberculosis is obviously impossible. Theoretically, as long as a single living tubercle bacillus remains in the body and obtains its sustenance by breaking down body tissue one might contend that activity exists. The point that we must try to determine is that point when the patient, under ordinary conditions of life, is reasonably secure against further damage from the disease. We shall confine ourselves to practical considerations.

We are today frequently called upon to determine whether or not a given tuberculous lesion is active or inactive and it is with the hope that this difficult task may be made somewhat easier that the following procedures are correlated and discussed.

#### HISTORY

Notwithstanding the great advances made in laboratory diagnostic methods, a carefully obtained history has lost none of its importance. Today we realize more than ever that every case of tuberculosis comes from a previous case and a history of prolonged exposure to massive doses of infection must be given great weight in deciding whether or not a case is one of active tuberculosis.

This is especially true in dealing with chil-

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dren. A child that is exposed frequently to large doses of tubercle bacilli, if he has a demonstrable lesion is likely to have a lesion which is still active. Such children sometimes have active lesions when they cannot be demonstrated. While we cannot diagnose active tuberculosis from the history alone, still if there has been recent exposure to large doses we have a strong link in our chain of evidence.

A history of past diseases and experiences such as pleurisy (especially with effusion), hemoptysis, recurring colds, adenitis and fistula in ano, add weight on the side of a diagnosis of tuberculosis. However, these may have existed and been associated with a tuberculosis that is no longer active. A recent hemoptysis for which no cause other than tuberculosis can be found is very strong circumstantial evidence of activity. While one can conceive of a hemoptysis from a vessel weakened by a tuberculosis lesion which is healed; it is likely that one who makes this assumption will be disillusioned provided he observes his patient long enough. Symptoms of which the patient complains when presenting himself for examination definitely prove activity provided one knows that a tuberculous lesion is responsible for the symptoms.

#### SYMPTOMS

Certain signs and symptoms are directly referable to the respiratory tract. Frequent colds, hemoptysis, pleurisy and expectoration are all manifestations of some chest condition. Such symptoms as hoarseness, cough, chest and shoulder pains, diminished motion of chest muscles or diaphragm and muscle spasm of chest muscles are in the main reflex manifestations from the respiratory organs. Malaise, weakness, night sweats, loss of weight, nervous instability, anorexia, digestive disturbances, increased pulse rate and elevation of temperature are symptoms of toxemia. In themselves they are no more evidence of a tuberculous infection than they are evidence of an infection that is nontuberculous. They are invaluable when correlated with local manifestations and reflex symptoms but mean only a local infection when taken alone. When such symptoms can be attributed to a tuberculous infection, activity is established. When after a complete and diligent search no other explanation can be found to account for the symptoms, the patient is usually best served by assuming tuberculosis as the cause and instituting treatment. Fortunately, with our present methods of examination a lesion can usually be demonstrated when symptoms are present. Exceptional cases, however, do exist with undemonstrable lesions and this possibility must always be borne in mind.

Until recently, our definition of activity de-

pended almost wholly on symptoms. Except for a few other qualifying conditions a lesion which did not occasion symptoms was not considered active. This definition has become so thoroughly entrenched in our minds that it is still hard for us to visualize activity without symptoms. Many modern investigators, among whom Opie, McPhedran, Landis, and Hetherington<sup>1</sup> are conspicuous, have frequently demonstrated grave lesions without symptoms. In fact, any one who has had extensive experience with the disease has often observed in serial roentgenograms lesions that were constantly spreading in patients practically symptom-free. It is very logical to expect this. Symptoms are caused by absorption of toxins. Visualize a cavity around which a strong wall of scar tissue has been developed, so strong that no toxins are being absorbed. As the tubercle bacilli slowly erode the walls of the cavity the defensive forces are adding to the capsule at its periphery, and as long as the erosion is balanced by the new addition to the barrier toxins are prevented from entering the circulation; but the cavity is constantly becoming larger. Certainly such a condition must be considered active tuberculosis though symptoms be absent. But we are not only confronted with such cases where it is easy to explain the absence of intoxication. Especially among children many cases are seen with infiltrations not so thoroughly walled off and still there is not enough absorption of toxins or perhaps not enough sensitization to these toxins to cause the child to have symptoms. Time was when the underweight children were singled out as the ones most likely to have tuberculosis, but investigation beyond this group has shown that many children of normal weight or overweight have tuberculous lesions. Our best guide for approach to the tuberculous children is, as I have intimated before, a history of exposure to massive infection. If we would make our "early diagnosis campaigns" amount to more than "early diagnosis of far advanced tuberculosis" we must accept the fact that active tuberculosis does exist without symptoms. At least the symptoms, if they do exist, are so insignificant that they fail to attract the layman's or the physician's attention.

In this connection McPhedran<sup>2</sup> says, "the methods selected to this end [the control of the disease] must take account of the insidious onset of tuberculosis and seek to discover anatomical invasion before the development of symptoms. Several years' observation of children living in household contact with patients who have positive sputum has shown conclusively that pulmonary infiltrations may be discovered months and often years before pulmonary

tuberculosis becomes manifest either by symptoms or by physical signs."

#### EXAMINATION

In the diagnosis of tuberculosis, physical examination of the patient in general and the chest in particular cannot be too strongly emphasized. With the high degree of perfection of such methods as the roentgen ray, blood examination, tuberculin test, etc., we are becoming prone to neglect the old time proved method of physical examination of the patient. After all, the greatest factor in diagnosis is good judgment on the part of the physician and this can best be obtained when all means at our disposal are employed and the results correlated. A detailed routine in physical examination rigidly adhered to is the first requisite. Routine is one of our greatest aids in concentration. Routine develops habits of action and concentration. It goes without saying that the value of the examination is directly proportional to the amount of concentration on the part of the examiner. Another reason why the physician should adhere to a rigid routine is to obtain the greatest possible uniformity of records, as it is a comparison of his records of repeated examinations made over a considerable period of time that counts most in the determination of activity in questionable cases.

It is not necessary in this paper to repeat at length the value of such findings as muscle atrophy or spasm, variation in tactile fremitus, percussion note, breath sounds, or spoken voice and rales. Before leaving the subject, however, I wish to call attention to the fact that after these findings have located a lesion, frequently the only way to determine activity is by comparing the findings noted on repeated examinations made at intervals. When by such comparisons abnormal findings (especially is this true of rales) are shown to be extending over larger areas of the lung activity probably exists.

#### LABORATORY FINDINGS

Laboratory findings in tuberculosis as in all other diseases are indispensable diagnostic aids. Tubercle bacilli found microscopically in sputum or other excreta practically prove an active tuberculous lesion. While every case is a law unto itself, and sometimes scores of examinations are made at the direction of the physician in charge, our routine at Robert Koch Hospital requires at least ten negative or two positive sputa before the search is stopped. When five routine specimens are negative a concentration method is used until either five more negative or two positive smears are obtained. When only one positive smear is found the search for the second is continued until considered hopeless. A negative result of course does not rule

out tuberculosis. There are many lesions, evidently tuberculous, which one would not expect to yield a positive sputum until further softening and contact with a bronchus has occurred. When the sputum remains persistently negative and the lesion is such that from other observations one would expect to find it positive, one must always be on the lookout for a nontuberculous infection. When a microscopic search of an ordinary smear is unsuccessful, a guinea pig inoculation with the sputum or other excreta may prove tuberculosis. The pig inoculation method is much more sensitive than microscopic examination of the ordinary smear. Culture methods have been developed by Petroff and others that are claimed to be as sensitive as guinea pig inoculation.

When a lesion is known to be producing tubercle bacilli I think the only safe procedure is to consider such a lesion one of active tuberculosis.

In recent years the value of differential blood counting has been recognized in diagnosing and prognosing tuberculosis.

#### SCHILLING TEST

The Schilling method is used at Robert Koch Hospital. Others use the Arneth or modified Arneth method. Spector<sup>3</sup> believes the Arneth method more valuable for diagnosing infection than the Schilling method, but not so valuable for prognosing. Others, as Medlar<sup>4</sup> and Flinn and Flinn,<sup>5</sup> have laid emphasis on the relative numbers of neutrophils, lymphocytes and monocytes. These differences are mainly in the method employed. The underlying principles are very similar. For the past three years we have routinely made Schilling counts on all patients at Robert Koch Hospital. I shall discuss this method in some detail. Those interested in more detail I would refer to Schilling's<sup>6</sup> book, Gradwohl's<sup>7</sup> translation, or a paper by Bredeck,<sup>8</sup> one of the early discussions of Schilling's method in this country. Schilling classifies the neutrophils according to the age of the cell and a "shifting to the left" means a shift from the normal toward the less mature cells. He also lists the lymphocytes, monocytes, eosinophils and basophils. In tuberculosis the neutrophils, lymphocytes and monocytes are the most important cells. A reproduction of Schilling's classification is shown in table 1, with the upper limits of what he considers normal for the cells listed.

Table 1. Schilling's Classification

Zahl (Number)	Eosinophils Per Cent	Basophils Per Cent	Myelocytes Per Cent	Young Forms Per Cent	Stab-Kernige Per Cent	Segment- Kernige Per Cent	Lymphocytes Per Cent	Monocytes Per Cent
8000	4	1	0	1	5	67	35	8



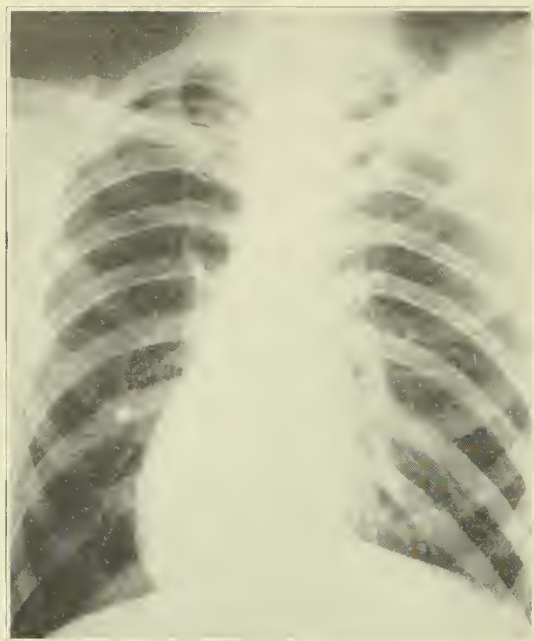


Fig. 1. Roentgenogram of chest of one known not to have active tuberculosis. If taken alone might lead to an erroneous diagnosis.

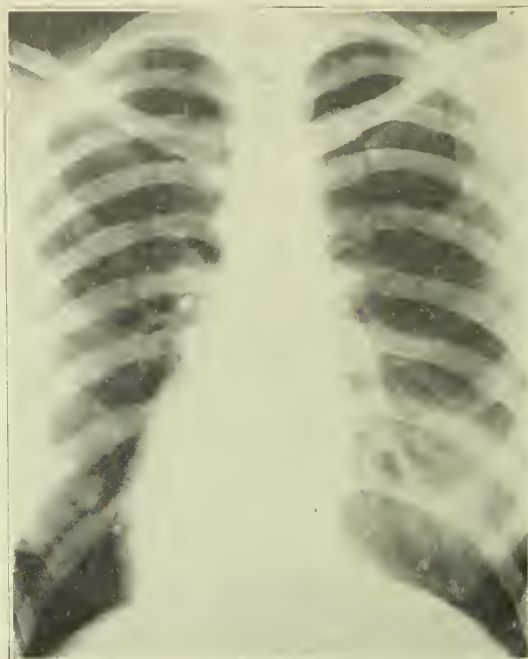


Fig. 2. Same case as figures 3, 4 and 5. Roentgenogram made September 6, 1930.

When the number of stab-Kernige consistently exceed five or the young forms exceed one there is probably an active infection. It would seem from some cases we have seen that a very low lymphocyte count may be evidence of activity independent of a shift of neutrophils to the left. It would, however, be too extreme to interpret a low lymphocyte count as always meaning activity.

While a shift of the neutrophils to the left when due to tuberculosis is interpreted as meaning activity, yet in our opinion a single normal neutrophilic picture may occur in active cases. When, however, a series of counts are made at intervals one will find in the great majority of cases an abnormal composite blood picture. In slightly active cases where one does not observe a decisive shift to left of the neutrophils there is usually a decrease in the number of lymphocytes. A high lymphocyte count means good resistance. In old fibrotic cases with much resistance it sometimes exceeds 50 per cent.

A marked increase in monocytes is frequently present in moribund cases. A determination of the exact significance of the monocytes in tuberculosis requires further investigation.

Other tests, such as the complement fixation test, blood sedimentation test and platelet counts have their advocates and no doubt have some value. They are not very generally practiced as a routine. Our experience with them does not warrant more than passing mention.

#### TUBERCULIN TEST

The tuberculin test is of great value in determining activity. At Robert Koch Hospital we use both the subcutaneous and intracutaneous methods. The subcutaneous method is used only in cases of questionable diagnosis where other methods have failed to prove active tuberculosis. When there are no constitutional symptoms though there may be a local reaction the reaction is classed as negative. When there are constitutional symptoms and fever of  $1^{\circ}$  or more but no focal reaction at the site of the lesion the reaction is called a nonclinical reaction; when a focal reaction is demonstrable at the site of a lesion the reaction is designated as positive. The technic of our procedure has previously been described by the author.<sup>9</sup>

A negative reaction is interpreted to mean no active tuberculosis. The nonclinical reactors are in the doubtful class; a positive reaction is taken to mean active tuberculosis. In a follow-up<sup>9</sup> survey of our cases about 80 per cent of the negative cases remained well, while only about 60 per cent of the nonclinical reactors remained free from tuberculosis. The latter had been advised to spend three months in the sanatorium as a precautionary measure.

The intracutaneous (Mantoux) tuberculin test is valuable in that if positive it means there has been a tuberculous infection. When negative it may be assumed that no active tuberculosis exists. If it is positive, this finding must be weighed with the other observations,



Fig. 3. Same case as figures 2, 4 and 5, showing first evidence of infiltration in left apex. Roentgenogram made November 26, 1930.



Fig. 4. Same case as figures 2, 3 and 5, showing spread of lesion. Roentgenogram made December 13, 1930.

especially the exposure history and roentgen ray findings. An excellent method of interpreting this reaction is outlined by Hetherington, McPhedran, Landis, and Opie,<sup>1</sup> who designate the degree of reaction by using the plus signs from one plus to four plus.

#### ROENTGEN RAY

The roentgen ray is perhaps the most valuable single diagnostic aid at our disposal. I hesitate to make this statement lest it should encourage more misuse of this method than already exists. The most valuable things are usually the most abused. First, let us consider sources of error. (1) One should not attempt to diagnose activity from a single exposure alone. While in relatively few cases it may be done, this practice has been the cause of much injustice to humanity by a diagnosis of active tuberculosis when it did not exist. For instance, the individual whose chest film is presented in figure 1 might easily have been given a diagnosis of active tuberculosis from the film alone. I have known this individual for eight years and never during that time has he had other evidence of tuberculosis. On careful inquiry nothing can be found in his past history that can be interpreted as tuberculosis. From a single film like this, active tuberculosis cannot be diagnosed without other evidence. Serial roentgenograms show the markings are not changing. (2) Errors can easily be made from improper exposure and from reading improperly developed films. Normal densities may

be exaggerated to appear abnormal or abnormal densities may be entirely imperceptible when too much penetration is used. (3) A frequent source of error is the comparative reading of dissimilar films differently exposed and developed. The best results from comparative readings are obtained when all films are prepared by the same technician, using as nearly as possible the same technic.

While in rare instances a careful physical examination will reveal lesions missed by the roentgen ray, the reverse is more frequently true. Neither method of course can be dispensed with. The roentgenogram is our most exact record of the extent of a lesion at a given time. Records of two physical examinations are by no means as comparable as the records on two films prepared by the same technician with the same technic. The comparison of such roentgenograms taken at intervals over a period of time will often prove activity when other methods fail. If a tuberculous lesion is spreading or a tuberculous cavity enlarging there can be no doubt that the lesion is active. Not infrequently the roentgenogram will show this when symptoms are not detected.

Figures 2, 3, 4 and 5 present roentgenograms of the lungs of a graduate nurse who would never have been diagnosed at this time except for the judicious use of the roentgen ray. Figure 2 represents a film made in September, 1930. She had some dental trouble which called for dental films and while visiting the roentgenology





Fig. 5. Same case as figures 2, 3 and 4. Roentgenogram made February 2, 1931, when patient was admitted to Robert Koch Hospital.

department of the hospital for dental films she had a roentgenogram of her chest made. This was interpreted as negative. In November she contracted what she thought was only a "cold." Her cough, temperature and chest pains disappeared after a few days. After these had subsided she had another roentgenogram made (figure 3). The lesion in the left apex was found and was first thought to be an unresolved pneumonia. Physical examination of the chest revealed nothing of significance. The patient was then on night duty and she recorded her temperature every two hours while awake for a week and, except for two times when the thermometer recorded 99.4, the temperature was entirely within normal limits. Roentgenograms were taken at frequent intervals to note whether or not the unresolved pneumonia was resolving. Figure 4 is one of these. It was made December 13, 1930. A spread of the lesion being evident, she was taken off duty and on January 31 was sent to Robert Koch Hospital. Figure 5 is the first roentgenogram made after admission to the sanatorium. The point about this case is that symptoms and physical examination and all other tests except the roentgen ray and the Schilling blood differential failed, and still the lesion has been proved definitely progressive.

The Schilling blood count shown in table 2, was made on admission to Robert Koch Hospital and all the time the patient has been at the sanatorium her temperature, pulse, respiration, sputum, and symptoms have been entirely

Table 2. Schilling Blood Count of Case Illustrated in Figures 2, 3, 4 and 5 on Admission to Robert Koch Hospital

Zahl (Number)	Eosinophils Per Cent	Basophils Per Cent	Myelocytes Per Cent	Young Forms Per Cent	Stab-Kernige Per Cent	Segment- Kernige Per Cent	Lymphocytes Per Cent	Monocytes Per Cent
8000	0	0	0	0	8	56	29	7

negative. That this case illustrates the value of serial roentgenograms is evident. But note also the Schilling differential. There is a definite though perhaps not a great deviation from normal. There is 8 per cent of stab-Kernige neutrophils which is three more than the maximum normal, and there is 29 per cent of lymphocytes, the lower limits of normal. These two observations are very significant and evidence the infectious process.

With reference to the roentgen ray in tuberculous lesions we, as physicians, must always remember and we must educate the layman to the fact that a single film does not tell us what is transpiring in a chest. It often does tell us what has transpired but it takes a series of roentgenograms taken at intervals to tell us what is transpiring.

#### SUMMARY

1. As a result of public education by tuberculosis societies, health departments, life insurance companies, etc., the physician of today is frequently called upon to diagnose questionable or border line cases.

2. History of prolonged exposure to massive doses of infection is extremely important. This is especially true in dealing with children.

3. A detailed routine for physical examination rigidly adhered to is very essential since it develops concentration on the part of the examiner, and also because a comparison of the records of repeated examinations is so important in diagnosing border line cases.

4. Tuberculous lesions producing tubercle bacilli are considered active lesions.

5. The Schilling differential blood count, if repeated counts are made at intervals, usually indicates whether or not there is an active infection.

6. The tuberculin tests, both subcutaneous and intracutaneous, are helpful. When subcutaneous administration of tuberculin results in a general and focal reaction it is interpreted to mean that active tuberculosis exists. Most cases who fail to react to 10 mg. O.T. subcutaneously administered have no active tuberculosis. A failure to react to tuberculin intracutaneously administered is taken to mean either that no infection has occurred or having occurred is very thoroughly healed.

7. Errors in interpretation of the roentgenogram may arise from the following: (a) Diagnosing activity from a single film; a diagnosis of active tuberculosis should never be made from a single roentgenogram alone; (b) trusting to improperly exposed and improperly developed films; (c) a comparative reading of films that from the standpoint of exposure and development are not comparable.

8. A comparison of roentgenograms taken at intervals often proves a lesion is active and progressing even in the absence of other evidence.

9. A roentgenogram furnishes one of the best means of keeping a permanent record.

10. Films prepared by the same technician with a similar technic are best for comparative readings.

11. A single roentgenogram indicates what has transpired in a chest; a series of roentgenograms made at intervals indicates what is transpiring in a chest.

Koch Hospital.

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#### DISCUSSION

DR. CHARLES C. DENNIE, Kansas City: I saw C. R. with Dr. Mercer at the time of instituting treatment. We withdrew fluid from the joints and inoculated guinea pigs. The pigs were killed on the eighteenth day and tubercle bacilli were easily demonstrated. One pig had numerous nodules in all its organs. There is no doubt in my mind that the patient was suffering from acute multiple tuberculous joints. Treatment as outlined in Dr. Mercer's paper resulted as shown in the patient.

DR. C. WILBUR MERCER, closing: In the paper I said these patients were given tuberculin (bacillen emulsion) and I wish to go on record as to the type of work done on these patients. I believe it is original; I have not found anybody else doing it. The patients were treated with autogenous tuberculin made from fluid withdrawn from the joint of the patient. I wish to go on record as doing this work.

DR. SCOTT P. CHILD, Mt. Vernon, in closing: I

want to appeal to the profession to give more consideration to the fact that a large majority of children from birth to twenty-one years of age are going to contribute to the future cases of adult tuberculosis. The profession has an opportunity to prevent these adult cases if we give serious consideration to the examination of every child and periodically through childhood.

We have two means of satisfying ourselves of the presence of tuberculous infection, (1) tuberculin test, and (2) the roentgen ray. These should be resorted to routinely and systematically. Every county in Illinois, Minnesota and Wisconsin has a tuberculosis nurse. Missouri has the highest mortality from tuberculosis of any of the twelve states of the Mississippi Valley. That should be improved. We are not controlling tuberculosis in Missouri as we should. It is accepted that tuberculosis is being lessened in America but, as brought out at the Henry Phipps Institute we have just as many cases of tuberculosis among children as were found twenty years ago in the densely populated cities of Europe. Since it is possible to demonstrate the presence of tuberculosis it certainly should be determined to a greater degree in Missouri. I hope that through our Association, the Missouri State Tuberculosis Association and the State Board of Health, we may bring about effective legislation to help the whole State organize against tuberculosis.

#### BANDL'S RING\*

GEO. F. PENDLETON, M.D.

KANSAS CITY, MO.

In order to feel the Bandl ring, introduce the hand beyond the internal os in a normal woman in labor. Palpate the inner contour of the uterus during contractions. Feel for yourself the muscular ridge contracting with labor pains and fading away between the pains. This constriction is the so-called physiological "Bandl ring."

To understand this ring we must consider the anatomy and physiology of the uterus. It has three muscular layers. The outer and inner longitudinal ones are only evident during pregnancy while the thick inner circular layer with its intricate muscle bundles is the predominant factor. The action of this circular muscle in labor, as is well known, exerts a pressure simultaneously and equally upon the uterine contents. In the cervix the circular arrangement is more orderly. At the cervicouterine junction just above the internal os this muscle is thinner, glands are less numerous and the stroma is diminished. Here lies the so-called isthmus of the uterus.

The uterine walls contain three defects, i. e., the ostia of the fallopian tubes and the internal os. Textbooks would have us believe that rhythmic muscular contractions exert great force upon this internal os which readily dilates by means of a wedge of the bag of waters.

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



If this were the extent of Nature's mechanics what prevents the fetal discharge through a dilating fallopian tube? The answer lies in the changing anatomy of the uterus in labor. At the isthmus, just above the internal os during the latter months of gestation or in early labor, the circular layer of muscle of the corpus uteri pulls away from the circular layer in the cervix while the longitudinal layers merely stretch. A new territory is formed. That mysterious lower uterine segment which does not exist in the nonpregnant has been created in the pregnant uterus. It is funnel-like in shape. The walls consist of mucosa, inner and outer longitudinal muscle fibers and contain little or no circular muscle strands. The upper boundary ends at the lower edge of the circular muscle of the corpus uteri. The lower portion lies just above the internal os. Its physiological action is passive. It can shorten. It may stretch but it will not contract. As labor progresses it elongates and its walls become very thin and easily accumulate splits and tears.

The uterus is now a hollow ovoid with a fundus of thick muscular walls capable of great expulsive force. The lower area is thin and noncontractile. A uterine contraction produces pressure upon the contained fetus and water but this force is exerted in the corpus where the thick circular muscle remains intact. It forces all contents toward the lower uterine segment. The presenting part rests upon the internal os. At the height of a uterine pain the circular muscle contracts powerfully and equally. The lower edge forms the physiological Bandl ring which is easily palpable from within during a normal labor contraction and disappears with uterine relaxation. Imagine a hollow muscular watermelon with one pole cut away. Suppose equal muscular contractions occur. The open end would contract to form a circular ridge analogous to the Bandl ring.

Normally when labor starts the presenting part rests upon the internal os. Contractions push the fetus downward and the lower uterine segment elongates. The Bandl ring marks the lowest boundary where propulsive muscular force can be exerted upon the fetus. The area below can only dilate and stretch according to the amount of obstruction encountered by the advancing presenting part. The internal os forms a distinct obstruction. If the obstruction is mild the os readily dilates and the lower uterine segment remains short and its walls thick. First-stage pains were conceived to dilate this os by using the mechanical wedge of the bag of waters, the pull of the lower uterine segment upward and outward upon the walls of the internal os and the congestion of

the lymph and venous spaces in the cervix with its softening process, while the powerful downward force of the uterine muscle is the dominant factor in producing these other conditions.

To this point we have discussed the normal. It is not desirable for first-stage pains to be frequent or extremely severe. This interval requires time to soften and dilate the internal os without excessive strain and elongation of the lower uterine segment. In my opinion powerful pains in the first stage of labor (such as come with premature rupture of the bag of waters) is contrary to the desire of nature.

The contractibility of uterine muscle offers some peculiarities. When once the uterine wall contracts to a much smaller content and is held in that new position for a time it is very hard to dilate that wall back to its former great capacity. Even under the deepest anesthesia after childbirth, intrauterine dilation of the muscular wall is beyond human strength. We say the muscle is retracted.

Let us assume a condition altogether too common in obstetrics. Suppose the bag of waters ruptures before or early in labor; to this allow us extra obstruction to the normal advancement of the presenting part of the fetus. Due to the release of the amniotic fluid the uterine cavity is decreased in size and the labor pains have increased in severity. The fundus contracts powerfully and the Bandl ring contracts in direct proportion. The fetus is forced downward but meets strong resistance at the os and the lower uterine segment elongates. Repeated contractions occur. The uterine wall retracts upon the fetal body and the Bandl ring also hugs a fetal part. During uterine rest the muscle relaxes somewhat. The lower uterine segment is greatly stretched. An abnormal condition may occur. On account of the lack of amniotic fluid the uterus hugs the fetal contour and the Bandl ring becomes tight about the irregular fetal structure. Contractions increase in intensity and there is less muscular relaxation. The uterus clamps around the fetus and the ring retracts tight and rigid. Soon its bulk and contraction are great enough to surround a fetal concavity, too often the fetal neck. The ring becomes so solid that it of itself prevents the fetus from advancing outward because the shoulders are impinged inside against the muscular edge and at the height of a contraction of the uterus this powerful ring pulls the fetus backward into the uterine cavity and the fetal presenting part retracts backward or inward. This is the most diagnostic symptom I have encountered, i. e., retraction of the presenting part at the height of a uterine contraction and this sign is evidence that an ab-

normal Bandl ring is present. If the condition continues tetanic uterine contractions may result and the uterus remain contracted. The lower uterine segment elongates and becomes very thin. Nature reaches a limit. The weak spot gives away. The thin lower uterine segment ruptures. If the uterine artery is severed the termination is apt to be fatal from embolism or shock. Happily, there is one other way which nature most frequently uses. Under this impending rupture unless the patient has been subjected to the added danger of pituitrin she frequently produces a safety valve, i. e., she tires. Work ceases. The contracted uterus mildly relaxes while the Bandl ring remains *in statu quo*. Only fitful, irregular, senseless contractions occur, painful but of no value to the labor. Individual muscle fibers work as individuals. There is no unified uterine contraction or relaxation. Concerted action has changed to individual fiber contraction. Shall I create the term uterine fibrillation? The patient rests and under the spell of exhaustion the ring may dilate somewhat but generally very little. The maternal pulse increases. After a rest of hours or days the labor action renews with strong uterine contractions until tired nature again ceases from exhaustion. In the meantime the external os may remain with little or in any stage to full dilation. Thus the condition will continue to maternal and fetal exhaustion and finally to their death. Occasionally the extreme exhaustion relaxes the abnormal ring and labor progresses to a normal delivery. I once carried such a case to a normal delivery after eight days of labor in a mother who refused interference.

The Bandl ring generally occurs when the bag of water has ruptured early in labor. Occasionally it appears in any pregnancy wherein early labor pains are too severe but back of this depends the pathology of a fetus with an obstructed advancement, such as posterior vertex position, extended head, face presentation, transverse position, small pelves and faulty use of pituitrin in early labor. In my series of cases it could be expected but only diagnosed when palpated. Retraction of the presenting part at the height of a uterine contraction is always diagnostic. This ring is not rare in obstetrics and any obstetrician has a long list of such conditions in his experience. It may partially or completely encircle the uterus and if partially it generally occurs on the posterior uterine wall. When physiological it is only a few centimeters above the internal os while pathologically it may occur at or above the navel due to the elongated lower uterine segment. Its base will be wide. Above, it is

rounded with a wide curve while its lower side will be straight and steep. Its edge may be thin and sharp but is generally wide and rounded. Palpation finds it very rigid but generally dilatable under deep anesthesia. I have cut into such a ring and found it a bloodless firm fibrous mass of muscle that disappeared as soon as it was severed. Pictures published in the English and French literature showing the ring prominent after death have not been met in my experience because we do not allow the case to progress that far. Only once have I had such a ring recur in the same patient and in that one the third labor was quick and normal.

*Treatment.*—Do not allow heavy labor in the early first stage, especially in primipara or in those who lose the bag of waters early, or those having evident faulty positions. Morphine and scopolamine or morphine and magnesium sulphate aid in such a labor. Suspect an abnormal ring in long lingering labors. The English literature cites cases where bags were inserted for dilation or forceps applied and a heavy traction weight tied to them while the patient was held under deep anesthesia for one or two hours, to tire out the ring. With them cesarean section has been common and the mortality high. In this country we place the mother under deep anesthesia and try to tire out and dilate the ring with our hand. The next procedure is to correct the fetal obstruction which is often a faulty vertex position. Occasionally, forceps can be applied but generally a podalic version is the method of choice. After a version it is remarkable how soon the abnormal ring disappears and a few minutes later a search is often vain inside the uterus for a ring greatly in evidence a few minutes before. Dr. Rucker, of Virginia, advises the use of adrenalin hypodermically to relax the ring. I have used it several times with success and many times with failure. I have tried ephedrine twice without success. As a rule a deep ether anesthesia, tiring out and dilating the ring followed with version, seem to me to be the method of choice. In the version where this ring complicates the procedure and the muscular uterus firmly clamps the fetal body, it is occasionally difficult to reach high enough to grasp the feet or legs but only once have I failed. In that case the ring was clamped about the fetal hips which could not be reversed through the small contracted opening. Here a cesarean section was done not from choice but through necessity. The next difficulty has come when the fetal arms have been scraped away from the fetal chest and extended along the side or back of the head. These arms must be located and extracted before the head can be



born and this complication often accounts for a fetal death. The fetal head occasionally becomes extended. The advancing chin impinges on the Bandl ring. A pull upon the fetus merely extends the head further and causes a complication dreaded in all versions. Generally, properly placed fingers can depress the ring at the chin and the head can be flexed before the usual extraction. Forceps on the after-coming head will often aid when the ring is tight and too rigid to push backward under the chin.

This Bandl ring changes from the normal to the abnormal in a patient while the unsuspecting doctor loiters near. Certain conditions such as premature rupture of the amniotic membranes, long lingering labors and unnatural presentations warn him of possible trouble. His experience teaches him however that watchful waiting is better in the long run than meddlesome inquisitiveness. He refrains from internal examinations. If he is wise he uses sedatives liberally but if he is impetuous he applies forceps. Too often this is high forceps. He cannot get good application and when he pulls he feels heavy resistance. Wisdom whispers, "Be careful." With powerful pulls he reattacks his problem. Dogmatism overcomes whispers. He braces his feet, and with powerful force he pulls and jerks. There is a quick slip, something releases the fetus quickly and he delivers his baby with a slight excess of blood. The mother returns to consciousness but if she avoids shock her pulse remains elevated and in the days to come the doctor wonders why and how his patient acquired her fever. He refuses to consider that ruptured Bandl ring or that split thin lower uterine segment. If however caution overcomes foolishness the doctor removes his forceps and gently inserts his hand within the carefully prepared vagina. He checks the position of the presenting part and investigates what lies behind it. He finds a thick rigid band tightly grasping and retarding the fetus. Caution has made the diagnosis. Lucky is the woman where caution overcomes impetuosity, when art overcomes dogmatism for skill can now solve the problem where brute force would do damage.

It has always been a great desire of mine to insert a knife or scissors and cut the inner edge of these rings to see if such a procedure would not easily correct the difficulty. We all know of cases where high forceps have been applied and by main force a baby has been extracted regardless of internal damage to the contracted passage but the old surgical principle still applies that "A bleeding area which you can see

is not dangerous while a concealed one is serious."

*Conclusions.*—There is such a thing as a Bandl ring. It is a physiological mechanism in all labors. It occasionally becomes pathological in action and produces a serious complication; bad enough when diagnosed and dangerous when not recognized. It will cause death to mother and child. By version most cases can be delivered successfully. Cesarean section should be rarely necessary but when demanded, hysterectomy is safest for the mother if vaginal manipulation has first been tried.

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## THE ART OF STRAPPING BACKS\*

THEODORE P. BROOKES, M.D.

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Zinc oxide adhesive plaster is much used as a means for temporary immobilization of painful backs. The area most frequently involved is in the lumbar spine and sacro-iliacs. This same area lends itself best to this type of splinting because adhesive bands partially encircling the wings of the ilia can be easily and effectively applied.

It might seem needless to expatiate upon a procedure as simple as adhesive strapping were it not for the number of irritable backs seen which have not been relieved by the usual casual methods of application. These methods are faulty because (1) they are placed one band of adhesive at a time and cannot be pulled tight, and (2) they are overlapped but run horizontally. As the patient attempts to bend or stoop the tendency is for these parallel bands to separate. The tension is across their width rather than along their length.

Probably no two orthopedists apply adhesive plaster in exactly the same fashion. No originality is claimed for the technic to be described. It is merely one that has proven satisfactory in our hands in caring for low back pain due to pathological conditions in spinal joints, ligaments, or muscles.

The back must be exposed from the last ribs to the lower line of the buttocks. The patient stands facing a table or other immovable object. Strips of three-inch adhesive are prepared, long enough to reach from in front of the anterior superior spine of the ilium on one side to in front of the greater trochanter of the femur on the opposite side. One such strip is anchored on either side of the pelvis starting two inches anterior to a line dropped from the

\* From the Department of Surgery, Washington University School of Medicine.

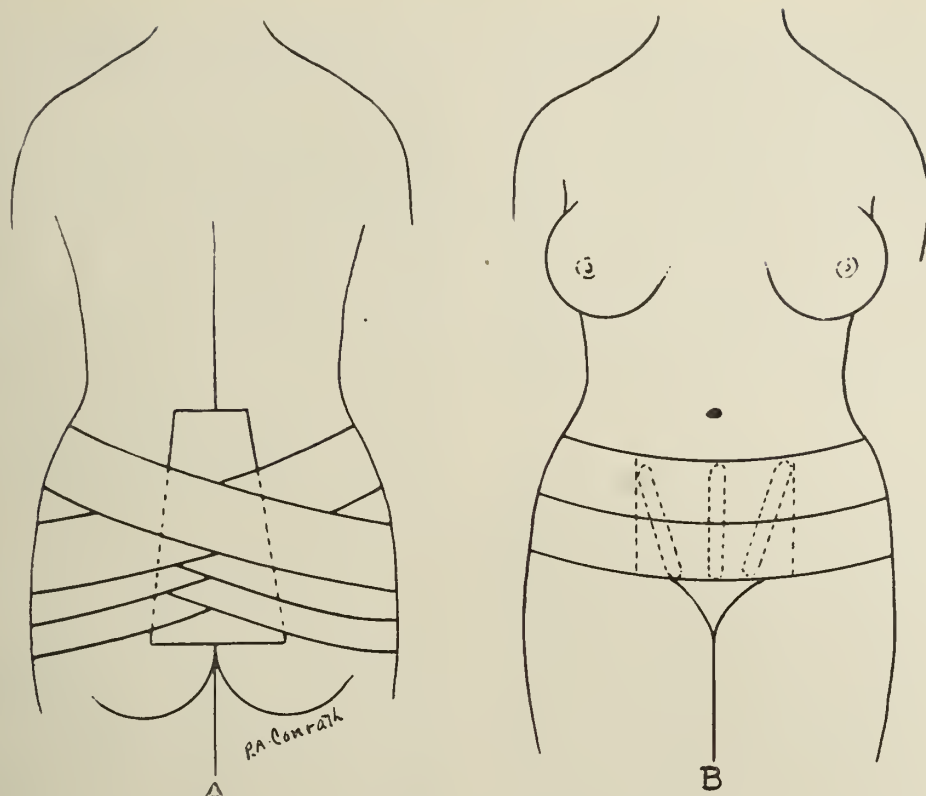


Fig. 1. A. Shows the crisscrossed adhesive strips with underlying splint of cardboard faced with felt. The splint is omitted in the simpler back strains. B. Shows method of applying abdominal bands with wooden tongue blades as spreaders, placed between the bands and facing of reversed adhesive.

anterior superior spine of the ilium and lying between the levels of the crest of the ilium and the greater trochanter of the femur. This is placed on an angle of twenty degrees from the horizontal, inclining toward the greater trochanter of the opposite side. The patient places a hand over each strip end to prevent its slipping before being secured.

The surgeon stands directly behind the patient, catches the loose ends of the two strips, the one from the patient's left side in his right hand and that from the patient's right in his left hand. Each strip is held firmly between the tips of all four fingers and the palm, otherwise the strength of the pull is greatly diminished and the adhesive tends to wrinkle. Crossing each other over the midline of the sacrum, the two strips are pulled tightly, at the same time laying them smoothly down, under tension, on the skin. Two pairs of such straps will hold a sacro-iliac or lumbosacral strain nicely. A strain or pain from arthritis in the lumbar spine may require three pairs, each overlapping its predecessor for one half of its width.

It is fortunate that one form of immobilization holds so well the various types of lower back pathology. It is frequently impossible to differentiate accurately the exact anatomical

location of the injury until the acute symptoms have begun to subside. This method of strapping, by its pull on the wings of the ilia, rotates them posteriorly and immobilizes the sacro-iliac synchondroses, relieving strain in these joints. It bunches the paravertebral muscles toward the midline, stimulating and assisting their splinting effort to relieve lumbosacral strain and other injuries in the lower spine.

Comparing this technic with the parallel encircling straps it is obvious that, as the patient attempts to bend or stoop, the strain on the adhesive is distributed four ways instead of two. These layers cannot pull apart. Also, there are four thicknesses of adhesive plaster over the midportion thus doubling the weight and splinting power at the painful zone.

Helpful modifications are many. Bands across the abdomen catch the anterior ends of the back straps and keep the adhesive from creeping on the skin. It has been suggested that the larger portion of this bellyband be faced with adhesive reversed, saving the patient from the itching and discomfort incident to tight adhesive on the tender cuticle of the abdomen. Such abdominal bands tend to wrinkle into rope and may be kept spread apart by placing three wooden tongue depressors be-



tween the straps and the reversed adhesive that constitutes the protective facing. This addition is particularly helpful in holding up a protuberant abdomen or correcting excessive lordosis of the lumbar spine.

If additional rigidity is desired for the lumbar spine heavy cardboard, such as accompanies roentgen ray films, faced with felt, may be placed over the lower back and held in place by an assistant as the back straps are applied over it. In any of these modifications, however, it is essential that the adhesive be placed at an angle and crisscrossed under continuous tension until the entire length is firmly secured to the skin.

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### TREATMENT OF SECONDARY ANEMIA

Herbert Z. Giffin and Charles H. Watkins, Rochester, Minn. (*Journal A. M. A.* Aug. 23, 1930) relate their experiences with fetal liver and bone marrow. This general review of 120 cases, demonstrates that desiccated fetal liver is effective in cryptogenetic, hemorrhagic and infectious types of secondary anemia in which the morphologic features are those seen in the hemoglobin deficiency type of secondary anemia. Its efficacy has not yet been compared with that of adult liver. It has not been supplemented with iron in a large group of cases, nor have the fractions of fetal liver been tested. These are all problems for the future. Experimental work, both in nutritional and in chronic hemorrhagic anemia, and also clinical experience, indicate the effectiveness of iron in large doses. Moreover, reports show that, both from an experimental standpoint and from clinical experience, iron supplements the action of other substances, and in addition to providing a supply of iron it probably has a "salt action." A balanced diet, rich in vitamins and hemoglobin-building foods, is frequently the only regimen necessary for the care of secondary anemia. Such diets, together with large doses of iron, constitute a logical procedure. Transfusion should be regarded as an emergency measure or a preliminary adjunct to the treatment of secondary anemia. At the present state of knowledge there seems to be no adequate justification of arsenic in secondary anemia in the absence of syphilis. In their experience with ninety-eight cases of chronic secondary anemia of the semiaplastic type, consistent effect from the use of bone marrow was not noted. There is at present no satisfactory clinical evidence of the effectiveness of spleen or bone marrow. While intravenous and intramuscular medication and subcutaneous injections of whole blood are rather widely used in the treatment of secondary anemia, the literature is barren on the subject and one is forced at present to conclude that they are at least unnecessary procedures. The results of experimentation on animals, clinical investigation and clinical trial indicate that in the cryptogenetic, chronic hemorrhagic, and chronic infectious types of anemia, and in those due to dietary deficiency first place should be given to a balanced diet, rich in vitamins and hemoglobin-building substances such as whole adult liver, whole fetal liver, kidney, red meats, apricots, and peaches and prunes, together with large doses of iron and 90 grains (6 Gm.) a day of ferric citrate, equivalent to 1 Gm. of metallic iron. There is apparently at present no

good reason for the use of arsenic, splenic extract, bone marrow, copper, or intravenous and intramuscular medication. Clinical trial has indicated that time is an important element, because hemoglobin-building factors must be produced before hemoglobin itself can be formed. The effects of whole adult liver, whole fetal liver, and especially the various fractions of liver, singly and in combination with iron, copper and other metals, must be investigated in the various types of anemia seen in man. Nutritional studies, particularly as related to food imbalance and food deficiencies, must be expanded and applied clinically. It is possible that certain types of secondary anemia may be benefited by the extract of Cohn and Minot when it is used in conjunction with other substances. A thorough clinical test should be made of the fractions described by Whipple and Robschey-Robbins, and their coworkers. Especially should all clinical trials of these various substances be made singly, then in combination, and with cases satisfactorily controlled. The problem is the determination of the kind of treatment that is suited to each particular type of secondary anemia.

### MALABSORPTION IN DEFICIENCY DISEASES

Deficiency diseases is a term customarily applied to maladies that are caused by the lack of one of the accessory food factors, but this application, says Francis Lowell Burnett and Percy R. Howe, Boston (*Journal A. M. A.*, May 28, 1927), is too limited. The supposedly specific nature of the vitamins is responsible for this point of view; for while incomplete food will ultimately bring about easily recognized terminal lesions, the early metabolic disorders of intestinal indigestion, malabsorption and diarrhea or constipation have not been generally observed. The oversight is due to a failure to understand and apply indexes of normal absorption; for there is a normal form of the feces and a normal intestinal rate, and these should serve as valuable signs in early and slight deviations of health. An understanding of the restricted limits of normal absorption leads to the recognition of two subtle and vaguely symptomatic types of malabsorption. In one, through a lack of appetite, insufficient food is ingested, and there is an abnormal retention of the intestinal contents. Dejections are infrequent and scanty. In the other, enough food is consumed, but because it is incomplete or faulty, it passes too rapidly through the digestive tract. In both types the metabolic disorder is due to the ailment and not to the nutritive apparatus. Both types of malabsorption have been recorded by investigators of the human deficiency diseases of rickets, beriberi, scurvy and pellagra. If the restricted limits of normal absorption are applied to the metabolic diseases, the faulty food factors of eating too fast and too much, too little food, badly proportioned diets or habitually using physic or enemas act somewhat like food without the accessory substances, in producing intestinal indigestion and malabsorption. By the recognition of a normal form of the feces, a normal intestinal rate and a normal body weight, early and slight functional disorders of anabolism can be observed and treated, and an improved state of well being maintained. Without applying these indexes of normal absorption, however, the failure in the transfer of nutrient molecules to the body may continue for years before the factors of safety in the weakest tissue are exhausted and the readily recognized and destructive changes of a definite disease are apparent.

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OCTOBER, 1931

## EDITORIALS

### ARISTIDES AGRAMONTE

The death of Aristides Agramonte in New Orleans August 17 marks the passing of one of the illustrious pioneers of preventive medicine. Dr. Aristides Agramonte was the last of the four scientists to whom is credited the practical eradication of yellow fever although the organism has never been positively isolated.

Early in the spring of 1900, during the occupation of Cuba by the United States, a commission to control yellow fever was appointed by Surgeon-General Sternberg, himself one of the most energetic students of the disease. Dr. Walter Reed, then professor of bacteriology in the Army Medical School, was placed in charge. Dr. James Carroll, Dr. Jesse W. Lazear and Dr. Agramonte were the other members of the commission.

It had repeatedly been suggested even as early as 1854 that some relation existed between the bite of the mosquito and tropical fevers but the first to announce definitely the theory that yellow fever was transmitted by the mosquito was Dr. Carlos Finlay of Havana. In 1881 he read a paper before a medical congress in Washington, D. C., in which he asserted that yellow fever was transmitted by the *Stegomyia* mosquito. He was unable to prove his theory; in fact, his experiments which were sadly limited by meager equipment seemed to disprove this possibility but his belief was unshaken. His theory received little credence and when, previous to the appointing of the commission, Dr. Wm. C. Gorgas, sanitary officer of the United States Army in Havana, began intensive work toward eradicating yellow fever he gave the city "a good scouring and a good bath" to rid the community of "fomites," then believed to be the causative factor. Failure to lower the death rate from yellow fever by the great improve-

ment in sanitary conditions however did not direct attention to the mosquito.

Just preceding the appointment of the United States Army Yellow Fever Commission, Dr. Henry R. Carter of the Public Health Service made a long report on the spread of yellow fever in isolated houses in Mississippi. Little attention was paid to the voluminous statistics that he had collected in his investigations until Dr. Reed studied them after his appointment as head of the commission. His immediate conclusion was that the disease was propagated by an insect host. His ready conclusion was no doubt influenced by work which had recently been done by Ronald Ross on mosquito transmission of malaria.

The commission immediately began to work on the mosquito transmission theory, at first with discouraging results. Carroll was the first of the commission to permit himself to be bitten by a *Stegomyia* mosquito that had fed on yellow fever victims. He barely survived the attack that followed and died a few years later of an organic heart lesion which was a sequela of the yellow fever attack.

While Carroll was lying between life and death Lazear became ill with the disease. While he was applying an insect to the arm of a soldier another mosquito lighted on Lazear's arm and he refrained from brushing it away. After a week's illness Lazear died.

An especially heroic aspect of the work of the commission was that the experiments were conducted exclusively upon human beings. At that time it was believed that the lower animals were immune and even today it has not been determined with positiveness that even apes can contract the disease. It remained therefore for humans to perform the part usually assigned to guinea pigs and rabbits and many volunteers from the American soldiers in Havana offered themselves as subjects. The entire story of the wiping out of yellow fever is one of self-sacrifice. In considering the work of these men one is at a loss to know which to admire more, the remarkable accuracy and precision of the experiments or the heroism of the men.

When the success of the demonstration was established it appeared at first that the yellow fever peril was in no way lessened. Indeed, the work of the commission seemed only to have reduced the situation to one of utter despair. To Gorgas fell the seemingly hopeless task of applying the knowledge gained by Reed and his associates. Gorgas took up the work and to disparaging counsel said "Perhaps we can't do it, but we shall try." After nine months of drastic work which entailed constant vigilance and never ceasing tact in dealing with



the people, Havana was practically freed from yellow fever. A small attack broke out four years later but was promptly checked by Gorgas' methods and since that time not a single case of yellow fever has been reported in the city that for centuries had been its stronghold. Following the example of Havana other cities ridded themselves of the disease. Then in 1904 Gorgas went on to Panama to attack the herculean problem of ridding that country of the disease so that the Panama Canal might be built.

While the work of world-wide eradication of yellow fever has not been completed as is shown by the more recent martyrs, Stokes, Wakeman, Noguchi and others, the disease is now manageable and it is assured that the epidemics which formerly decimated many cities will not recur. The work of the Yellow Fever Commission in which Dr. Agramonte played such a dramatic part is an outstanding milestone in the field of preventive medicine and constitutes one of the greatest practical triumphs of scientific medicine; indeed, in view of the far-reaching commercial consequences it may be classed as one of the great accomplishments of the twentieth century.

Dr. Agramonte who was the only Cuban on the commission was immune having survived a yellow fever attack in earlier years. To him, therefore, fell the work of the postmortem investigation of the victims. Dr. Agramonte emigrated from Cuba to the United States with his family and studied in the College of the City of New York and the College of Physicians and Surgeons. He held several appointments in New York City and in 1898 was appointed acting assistant surgeon of the United States Army. Dr. Agramonte had studied the etiology of yellow fever in Cuba preceding the appointment of the commission. Following his work with the commission he occupied the chair of bacteriology and experimental pathology on the Medical Faculty of Havana.

#### FIGHTING DIPHTHERIA IN ST. LOUIS

A three-year campaign against diphtheria in the City of St. Louis and in St. Louis County was inaugurated by the St. Louis Health and Hospital Council and the health departments of St. Louis City and St. Louis County on August 31.

Despite the fact that diphtheria is one of the few diseases for which we have a specific remedy and is one of the few maladies that can be prevented the number of deaths from diphtheria continues to be distressingly high.

Perhaps one reason for this high death rate is because the curative value of diphtheria antitoxin depreciates rapidly with every day the disease is permitted to progress without the use of the antitoxin. A further cause for the high death rate is of course lack of cooperation by the public in seeking medical advice early in all attacks affecting the nose and throat in order to decide whether the condition is diphtheritic or not and if it is, attack it promptly with antidiphtheria toxin.

Another phase of the problem is the lack of information among the people of the very positive effect of toxin-antitoxin (toxoid) in the immunization of children. The stage of doubt concerning the effectiveness of toxin-antitoxin immunization has long since disappeared in the medical profession. The hesitancy of some of the people and even their antagonism to cooperate with the medical profession now remain to be eliminated and it was with that object in view that the Health and Hospital Council and health departments began this campaign.

The initial effort was begun on August 31 and ended September 15. It consisted of posters placed on prominent billboards in the city and county calling the attention of parents to the preventive value of toxin-antitoxin. Members of the St. Louis Medical Society, the St. Louis County Medical Society, the health departments and the Health and Hospital Council were given periods of time for broadcasting messages to the people over KMOX and KWK stations and the newspapers were very generous in the assignment of space in the news columns and editorials encouraging the people to give heed to the messages conveyed during the campaign.

It is not an impossible task that these organizations have undertaken. Diphtheria has actually been eradicated from certain communities by intelligent cooperation of the people with the medical and health officers but it of course needs constant and unrelenting vigilance once the disease has been eradicated to prevent the development of new cases. The likelihood of new cases developing, however, is reduced just in proportion to the number of children that have been rendered immune. It cannot be doubted, we believe, that the people of St. Louis City and St. Louis County will cooperate whole-heartedly in the campaign as the benefits of immunization become apparent during the three-year period.

It is proposed to follow the campaign of August 31 to September 15 with another intensive attack in the spring of 1932. In the meantime the education of the people will continue through articles published in newspapers,

radio broadcasting, and other means of general publicity.

### POSTGRADUATE COURSE

With the hot weather now a thing of the past (at least we hope it is) the component societies are resuming their sessions and we have reports from several of them indicating that the interest in society programs is not lagging. The Postgraduate Committee desires to convey to the program committees of the component societies an earnest invitation to ask for speakers to be sent to them at the expense of the State Medical Association. It is not intended that speakers from the Postgraduate Committee should altogether displace contributions from the members of the local societies but it has been demonstrated that an occasional guest speaker is a stimulating variation from the usual programs.

When requesting a speaker for a meeting the letter should reach the Secretary of the Association whenever possible from three weeks to a month in advance of the date of the session. Requests may mention the subject desired discussed or the physician wanted or if these details are to be left to the discretion of the Committee it should be so stated.

Many societies have taken advantage of this service but the Committee is anxious to assist a larger number of the component societies. Those counties that have not taken advantage of this opportunity are urged to enlist the services of the Postgraduate Committee during this fall and winter.

### DR. STARKLOFF HONORED

Dr. Max C. Starkloff, St. Louis, health commissioner of St. Louis for twenty-eight years, was elected president of the International Society of Medical Health Officers September 16 at the annual convention in Montreal, Canada. Dr. Starkloff became health commissioner of St. Louis in 1895 and served until 1903 when he returned to private practice for eight years. He again became health commissioner of St. Louis and has served continuously in that capacity since 1911. Under his untiring efforts and intelligent administration of the health laws of the city and state the community health of St. Louis has steadily advanced and few contagious diseases have reached the proportions of serious epidemics. An outstanding achievement is the low infant mortality rate in St. Louis. For the past four years St. Louis has led all other large cities in low infant mortality rates the 1930 rate being 52.9 per 1000 births, approaching the goal of 50 for large cities.

The election of Dr. Starkloff as president of the International Society of Medical Health Officers is an honor worthily bestowed and a recognition of achievements attained in a long life of sacrificial service in protecting the health and lives of the people whom Dr. Starkloff delights to serve.

### GOITER CLASSIFICATION AND NOMENCLATURE

In order to facilitate accuracy and avoid confusion when speaking or writing about goitrous conditions the American Association for the Study of Goiter recently announced a classification and nomenclature which it is suggested shall be generally adopted and for the present at least regarded as the standard terminology. The society invites the general adoption of this terminology by all workers in this field.

Four types of the disease are listed as the clinical classification as follows:

#### CLINICAL CLASSIFICATION

- Type 1. Nontoxic diffuse goiter.
- Type 2. Toxic diffuse goiter.
- Type 3. Nontoxic nodular goiter.
- Type 4. Toxic nodular goiter.

#### NOMENCLATURE

The association advocates a policy of using the simplest and yet the most descriptive nomenclature possible. The use of proper names, with the exception of those that are now well established and probably impossible to dispense with, is discouraged and the use of coined words invented to popularize a fad or fancy is condemned.

Emphasis should be made upon the importance of not confounding varieties and sequelae with types. The use of such terms as exophthalmic, hemorrhagic, cystic, adolescent, colloid, intrathoracic, substernal and congenital is perfectly proper when used to describe varieties but only constant characteristics should be used to designate types.

### NEWS NOTES

The program of the annual meeting of the Missouri Tuberculosis Association to be held in St. Joseph October 1, 2 and 3 includes the following members of the State Medical Association who will deliver addresses or conduct discussions: Drs. Herbert L. Mantz, Sam H. Snider, Wm. W. Buckingham, Kansas City; L. H. Fuson, H. W. Carle, G. T. Bloomer, St. Joseph; Howard H. Bell, Evarts A. Graham, R. L. Ehrlich, George D. Kettelkamp, St. Louis; Jesse E. Douglass, Webb City, and E. E. Glenn, Mount Vernon.



Fifty nurses and student nurses of the Missouri Methodist Hospital, St. Joseph, moved into the new nurses' home, formerly the Noyes-Baptist Hospital, September 4. Forty student nurses have been enrolled in the 1934 class. The two hospitals were merged December 13, 1930, and the Missouri Methodist Hospital purchased the Noyes-Baptist Hospital building for conversion into the nurses' home.

The examination of candidates for commission as assistant surgeon in the Regular Corps of the United States Public Health Service will be held at Washington, D. C., Chicago, New Orleans, and San Francisco. Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers and undergo a thorough physical examination. Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate. Request for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

The American Association of Railway Surgeons will hold its next annual meeting in St. Louis, November 4, 5, 6, 1931. This is a departure from the usual custom followed by the Association of Railway Surgeons in the past of holding its annual meeting in Chicago. The executive committee of the Association recommended this change because they felt that it would stimulate added interest in the programs and attract a large attendance. The Coronado Hotel has been selected as the headquarters and all meetings will be held in the Pal-Lido room. Arrangements have been completed for a joint meeting of the Association of Surgeons of the Illinois Central System with the American Association and the program of the first day will be contributed by the surgeons of the Illinois Central System. The committee on arrangements is composed of Drs. R. A. Woolsey, chairman; O. B. Zeinert, Fred W. Bailey, and R. E. Owen, of St. Louis, and F. H. Gunn, East St. Louis. This committee differs somewhat from the personnel announced in our September number when we stated that Dr. Fred W. Bailey, St. Louis, was chairman. Dr. G. G. Dowdall, Chicago, is president of the American Association of Railway Surgeons and Dr. Louis J. Mitchell, Chicago, is secretary.

Dr. Ernst von Quast, Kansas City, celebrated the seventy-sixth anniversary of his birth August 21 by working in his office. Dr. von Quast is one of Kansas City's oldest practicing physicians having been in active practice for fifty-four years. He is the only living member of the original staff of the Research Hospital which was established forty-four years ago as the German Hospital.

The following speakers responded to requests of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of county medical societies:

Dr. D. A. Robnett, Columbia, was the guest of the Buchanan County Medical Society at St. Joseph, September 2, and read a paper on "Carcinoma of the Cervix Uteri."

On September 15 Drs. H. I. Spector and D. L. Sexton, of St. Louis, attended a meeting of the St. Francois-Iron-Madison County Medical Society held at State Hospital No. 4, Farmington. Dr. Spector addressed the members on "Lung Abscess," and Dr. Sexton delivered a paper on "The Evaluation of Present Day Endocrine Therapy." The addresses were illustrated with lantern slides.

Dr. Jabez N. Jackson, Kansas City, was the guest speaker at a meeting of the St. Louis County Medical Society held in the nurses' home of the new St. Louis County Hospital, Clayton, September 9. Dr. Jackson delivered an address on "Physiological Considerations in Abdominal Surgery."

Dedication ceremonies for the new Menorah Hospital, Fiftieth and Troost Avenues, Kansas City, were held August 30. The hospital was first visualized by the late Mr. Nathan B. Schloss, of Kansas City, who upon his death in 1917 left a bequest of \$200,000 to start a fund for the erection of the hospital. In 1927 a campaign was begun by the Jewish Memorial Hospital Association for the remainder of the \$1,250,000 which the institution cost. The hospital was built by the Jewish Memorial Hospital Association but is nonsectarian.

The building is of red brick trimmed with Bedford stone and is six stories high. The first floor of one wing is devoted to children and includes a playroom for young convalescents. Operating rooms, laboratories and roentgen ray rooms occupy the second floor. Maternity cases will be cared for exclusively on the sixth floor where a special operating room is located. Twenty per cent of the beds in the hospital are for charity patients. Every room is wired for radio and a radio station is located in the hospital for broadcasting special programs.

Dr. Drew W. Luten, St. Louis, assistant professor of clinical medicine in Washington University School of Medicine, was the guest speaker at the September monthly meeting of the Kansas City Southwest Clinical Society. He delivered an address on "Present-Day Concepts in Cardiology."

William H. Goodson, Jr., Liberty, son of Dr. William H. Goodson, former state Senator, has been awarded the Alfred Hosmer Linder scholarship in the Harvard Medical School for outstanding freshman work in that school. This scholarship was established in 1895 by Mrs. George Linder and is awarded to a student who shall have proved himself of sound principles and marked ability. It carries an honorarium of \$325.

The ninth annual fall clinical conference of the Kansas City Southwest Clinical Society to be held in Kansas City, October 5 to 9 with headquarters at the President Hotel, has sixteen out-of-state guest speakers on the program, all eminent in their fields. In addition to the postgraduate courses and hospital clinics there will be a public meeting, the semi-centennial jubilee of the Jackson County Medical Society, round-table luncheons, a joint session with the southwestern branch of the American Urological Association, alumni buffet suppers and scientific exhibits. Dr. J. F. Hassig, Kansas City, Kansas, is president of the society, Dr. R. L. Diveley, Kansas City, Missouri, is editor in chief and Dr. M. A. Hanna, Kansas City, Missouri, is chairman of publicity.

The Jackson County Medical Society will celebrate the fiftieth anniversary of its active organization during the meeting of the Kansas City Southwest Clinical Society which will convene in Kansas City October 5 to 9. On the evening of October 6 the Jackson County Medical Society will celebrate its Semi-Centennial Jubilee. At this session Dr. E. Starr Judd, Rochester, Minnesota, president of the American Medical Association, will deliver an address on "The Function of the County Medical Society in the General Plan of the American Medical Association." The Jackson County Medical Society was originally established in 1874 and maintained a feeble existence until 1878. All the records of its activities during these years were destroyed by fire. The present Society, therefore, dates its birth from 1881 when activities were begun with Dr. C. D. McDonald as president, Dr. Joshua Miller, vice president, and Dr. C. W. Adams, secretary.

Centuries before the food value of citrus fruits was recognized a Chinese writer declared that the peel of the orange was a good tonic.

Statistical studies conducted in Illinois indicate that women live, on the average, two years longer than men but that women have more physical defects and are ill oftener.

The Radiological Society of North America will hold its seventeenth annual meeting in St. Louis, November 30 to December 4, 1931, with headquarters and meeting place at the New Jefferson Hotel. Dr. Edwin C. Ernst is chairman of the local committee on arrangements. He will be assisted by all the St. Louis Fellows of the Radiological Society and a number of other St. Louis and up-state physicians who have been invited to cooperate in making preparations for the meeting.

Twenty-four children suffering from St. Vitus' dance were treated successfully by fevers artificially produced by manufactured serum by Dr. Lucy Porter Sutton, New York, working in Bellevue Hospital, according to a report recently made to the American Medical Association. The average time the children remained in the hospital was nine days while sixty-three cases under the usual treatment of rest and quiet stayed in other hospitals an average of forty-seven days. Dr. Sutton used typhoid-paratyphoid serum because it gave fevers for successive days and reported the prompt stopping of the symptoms of St. Vitus' dance.

The discovery was by accident and occurred while Dr. Sutton was treating an extreme case of St. Vitus' dance in a boy. He was given a drug as a sedative with no beneficial effect but through a misunderstanding the drug was not stopped until the thirteenth day when a rash and a fever developed. This was traced to poisoning from the drug but it was noted that the St. Vitus' dance suddenly improved after the irregular fever that rose as high as 106.4 degrees. A consideration of various factors convinced Dr. Sutton that it was the fever that cured. She then tried small doses of typhoid serum because it was a safe and simple way of giving fever and found it effective. Later, typhoid-paratyphoid serum was chosen because it was an even simpler, safer and cheaper way of giving fever.

The twenty-four experimental cases were treated by fever more rapidly and more satisfactorily than any other cases of St. Vitus' dance which had heretofore been treated in Bellevue Hospital but Dr. Sutton still considers the treatment in an experimental stage.



The third golf tournament between the Doctors Golf Club and the Dentists Golf Club, St. Louis, was played September 9 at the North Hills Country Club. The physicians won by a score of 96.6 to 98.9. The inauguration of the contest occurred on July 11, 1930, and resulted in a tie but the physicians won the trophy when the tie was played off on October 17, 1930. Not more than forty golfers, chosen by the two groups because of their skill in the game, played in the first contest and the play-off of the tie but the enthusiasm over the tournament caused the groups to abandon the plan of having a limited number of players and to throw the tournament open to all golfers for the 1931 contest. All members of both clubs were invited to send in their average score for the year so that men of similar playing ability could be placed in foursomes. Under this plan ninety-two entered the tournament at the North Hills Club and the trophy was won by the physicians. A dinner and an auction bridge contest followed the tournament.

Lack of iron in the diet rather than lack of vitamin G may be the cause of pellagra it is suggested by studies which Dr. Sidney Bliss, New Orleans, Tulane University School of Medicine, has reported to *Science*.

The diet of cornbread and molasses which is the portion of the poor in the South is lacking in iron as well as in vitamin G and all foods listed as preventive or curative of pellagra because of their large vitamin G content also contain large amounts of iron. Among these foods are beef, liver, egg yolk and yeast.

Fifty-one persons suffering from pellagra were given iron by intravenous injection with encouraging results although it is still too early to state whether or not these patients will recover entirely from the disease by the administration of iron alone.

Dr. Bliss and his associates also studied the effect of iron on dogs suffering from black-tongue, a disease considered by some authorities to be the canine counterpart of pellagra. When fed on a diet of peas, cracker meal and cotton-seed oil the dogs developed black-tongue in severe form. When iron was injected into the veins of these animals with no change in the diet the animals promptly recovered.

Pellagra is practically unknown in children under two years of age. Children, puppies, kittens and young rabbits have about three times the concentration of iron as is found in the adult body. Dr. Bliss suggests that anemia which so frequently accompanies pellagra may be another indication of an iron deficiency in pellagra.

Dr. R. E. Ferguson, St. Joseph, medical superintendent of the Dr. C. R. Woodson's Sanitarium in St. Joseph, has been granted a patent on an operating table on which the Government patent office allowed four claims on new and original ideas. The principal advantage of the table, which is designed especially for use in physicians' offices, is that parts may be taken from the table and sterilized.

A well equipped operating room at St. Luke's Hospital, Kansas City, was recently dedicated to the memory of Dr. Herbert G. Tureman, who died in 1928. Dr. Tureman was born, reared, lived and practiced in Kansas City, specializing in otolaryngology. He was respected by his colleagues for his ability and loved by his many friends both within and without the profession. A bronze tablet in the dedicated room has the inscription: "In memory of Herbert G. Tureman, M.D., whose life was a tribute of love, loyalty and devotion to his fellow men." The operating room is equipped with the latest type operating table, instrument tables and accessory stands and the lighting is by a mirrored reflector and a central lens that can be speedily focused. Mrs. Tureman provided the room and many friends were present at the dedicatory exercises.

The eleventh annual meeting of the southwestern branch of the American Urological Association will convene in Kansas City October 9 and 10 in conjunction with the Kansas City Southwest Clinical Society which meets October 5 to 9. Ten Missouri physicians will deliver addresses in the scientific sessions. Dr. Ira H. Lockwood, Kansas City, will speak on "Hematuria From the Standpoint of the Roentgenologist." Motion pictures of various procedures in urological technic will be presented by Dr. H. H. Kramolowsky, St. Louis. Drs. Clinton K. Smith and James M. Nisbett, Kansas City, will present a paper on "Suprapubic Prostatectomy Under Vision with Reconstruction of the Bladder Neck." A report of two cases will be given by Dr. Neil S. Moore, St. Louis, in connection with a paper he will read on "Fibrin Stones of the Urinary Tract." In a section on case reports, Dr. Ernest G. Mark, Kansas City, will discuss a case of carbuncle of the kidney in a nine-month old infant. Dr. Clarence S. Capell, Kansas City, will report the finding at operation of a hairpin in the renal pelvis. Dr. R. Lee Hoffmann, Kansas City, is president of the association and will deliver the presidential address at a luncheon meeting in the Hotel President October 10.

A roentgen ray tube developing 2,000,000 volts has recently been installed in the new Kellogg radiation laboratory of the California Institute of Technology at Pasadena. The voltage of the new tube is double that of any tube previously used. The tube is thirty feet high nine feet being encased in a concrete chamber. Researches will be conducted by a group of eminent men on the possibility of developing a new and more effective method of treating cancer and other diseases with this high power roentgen ray tube. Dr. C. C. Lauritsen, Pasadena, designed the tube and will operate it.

A biological research laboratory is being planned as an addition to the Urusvati, the Himalayan Research Institute at Naggar in the Kulu Valley, Northern Punjab, India. The institute was established in 1928 by Professor and Mme. Nicholas de Roerich to provide an experimental station where American and European scholars may conduct original scientific researches in the fields of medicine, botany, biology, geology, astrophysics, archeology and other fields of science. It serves as the advanced field base for expeditions into these regions making them accessible by short routes instead of globe encircling journey. The institute consists of a department of archeology and related sciences and arts, a department of natural sciences and applied research, a research library and a museum.

The department of natural sciences will conduct original investigations in the different branches of natural science and the biological research laboratory is being planned for the study of biological problems in the Himalayan region. This section of the department will study ancient medicine and physiology with the discovery of their attainments in the light of modern research as the objective. Among early projects to be inaugurated will be a plantation of medicinal plants and a research laboratory. Three hundred eighty valuable species of medicinal herbs have been collected by the institute which for two years has been gathering material and data pertaining to the scientific and economic uses of the region's plant life and making a careful analysis of medicinal herbs together with a comparative study of native materia medica.

Plans are being drawn for a biochemical and cancer research laboratory which will include laboratories for cancer research, an organic and pharmacological laboratory, a general biochemical laboratory, a physical laboratory, a photographic and photometric room, a workshop and a library.

The first issue of the *Journal of Urusvati*, the official publication of the Himalayan Research Institute, was published July 1, 1931. Dr. Georges de Roerich is editor.

Six clinics for the examination of crippled children were held during September by the State Service for Crippled Children of the State University at Columbia to determine if operations at the University hospitals at Columbia could effect a cure or reduce the amount of deformity. Dr. G. Kenneth Coonse, orthopedic surgeon in charge of the state service, conducted the clinics which were held in Lamar, Nevada, Butler, Osceola, Warsaw and Trenton.

As a means of handling the health phase of the welfare situation in St. Joseph during the coming winter, five groups have been appointed by the citizens' committee in charge of welfare work. Among those appointed to the committees are the following physicians: Dr. H. W. Carle and Dr. C. H. Wallace, committee on hospitals; Dr. Daniel Morton, committee on medical care; Dr. L. H. Fuson and Dr. W. H. Minton, nursing service, and Dr. L. C. Bauman and Dr. John I. Tucker, contagion.

Malaria, which scourges whole populations of some Arab villages in certain marshy districts in Palestine, is being subjected to mass attack by a medical corps with headquarters at the Hebrew University in Jerusalem. The afflicted Arabs have given ready cooperation in the effort to rid themselves of their perennial ailment.

Two communities of Arabs were selected, one consisting of a group of villages and camps, the other a single village. Men, women and children, even babies less than two years old received two doses daily of quinine plus plasmochin through five days. Plasmochin was given with the quinine because this combination was found to have greater effect on the malarial parasite with the least ill effect on the patients. About 75 per cent of adults and 85 per cent of the children received the treatment.

Blood examination disclosed the presence of malarial parasites in 28 per cent at the beginning of the period and in only about 7 per cent at the end of the five days, a reduction of three fourths of the infection among those treated.

A discouraging feature of the work is the quickness with which the cured patients become reinfected. New cases appeared in less than three weeks among the treated persons. Also studies have shown that the infecting *Anopheles* is often found more than eight miles from the nearest breeding places. The final



clearing of this malaria-afflicted region will therefore require a long and hard-fought campaign.

The St. Louis Children's Hospital was bequeathed \$5,000 in the will of Mrs. Katherine Burnes Gatch, St. Louis, who died early in August.

A reunion of the 850 officers, nurses and enlisted men who composed the medical detachment at the Post Hospital, Jefferson Barracks, during the years of 1917 and 1918, was held in St. Louis September 5 and 6.

At the meeting of the American Psychological Association in Toronto September 10 Dr. Mary Shirley, Minneapolis, of the department of psychology of the University of Minnesota, told the psychologists that a child learns many things by leaps and bounds although it may develop its skill in these things in a more gradual manner. She described a two-years' experiment with twenty Minneapolis babies the results of which were at variance with the generally accepted theories that a child's development is continuous rather than in fits and starts.

Dr. Shirley believes development can be both gradual and sudden but that it is necessary to distinguish between the ability to do something new and to be skilled in doing it. Many new behaviorisms in children seem to emerge full-fledged rather than bit by bit while cumulative development in some babies seems to hitch and halt in its upward course.

Fleas, long suspected of transmitting endemic typhus fever in the United States, have at last been convicted of the offense. For months Drs. R. E. Dyer, A. S. Rumerich and L. F. Badger of the United States Public Health Service have been working to determine whether fleas were responsible for spreading typhus fever or whether some other agent should be sought. In Europe and Asia typhus is spread by the body louse but cases have occurred in the United States in which no such source of infection was possible.

The proof was obtained by injecting white rats with the virus of endemic typhus and then putting fleas on the rats. Six of these fleas were later emulsified and injected into two guinea pigs and both guinea pigs developed the symptoms of endemic typhus. Other fleas from the infected rats were placed in a new box containing white rats some of which were infected with typhus and some not infected. In two weeks one of the noninfected rats was killed and fleas from its body were emulsified

and injected into guinea pigs. The pigs developed the disease. Other experiments gave additional evidence that rat fleas are the carriers.

Dr. Ralph H. Major, Kansas City, was a guest speaker at the sixty-first annual session of the Colorado State Medical Society held in Colorado Springs, September 15 to 17. Dr. Major delivered an address on "Chronic Nephritis."

Dr. William Gerry Morgan, Washington, D. C., former president of the American Medical Association, was unanimously elected dean of the Georgetown University School of Medicine at a meeting of the university directors August 21. Dr. Morgan was appointed to the board of regents last June and will continue in that capacity also. It is an unusual procedure for a member of the board of regents to become the dean of the school but Dr. Morgan's election to the deanship was in recognition of his eminence in medicine and of his twenty-seven years of service on the medical faculty of Georgetown. In making the announcement Dr. W. Coleman Nevils, president of the university, said "The Georgetown Medical School is indeed fortunate in obtaining the services of Dr. Morgan as its dean. The twenty-five years or more he has served on its faculty and his rare ability as a specialist and leader in his profession make him admirably fitted to guide the school through the years of its reorganization and steady growth."

Six St. Louis physicians appeared on the program of the thirty-sixth annual session of the American Academy of Ophthalmology and Otolaryngology held at French Lick, Indiana, September 13 to 19. Two "Progress Lectures" are delivered at each meeting and this year both lectures were assigned to St. Louis members. Dr. B. J. McMahon spoke on "Progress in the Diagnosis and the Pathology in Otolaryngology," and Dr. W. F. Hardy on "Progress in Medical and Surgical Treatment in Ophthalmology." Dr. McMahon was one of four on the "instructional program" and gave a special course in "Histopathology of the Nose and Throat."

Conferences on otolaryngology were led by Dr. Arthur W. Proetz, his subjects being "Allergy" and "Sinus Diagnosis"; by Dr. L. K. Guggenheim on "Embryology of the Ear, Nose and Throat"; by Dr. Harry W. Lyman on "Diagnosis of Internal Ear Lesions," and Dr. Meyer Wiener on "Surgery of the Tear Sac."

Dr. Meyer Wiener is first vice president of the Academy, Dr. Arthur W. Proetz is editor

of the transactions and Dr. John L. Myers, Kansas City, is secretary for otolaryngology. Dr. Wiener and Dr. Myers were members of the program committee.

The roll call of the American Red Cross for members for 1932 will be held from Armistice Day to Thanksgiving, November 11 to 26. This roll call marks the fiftieth anniversary of Red Cross service.

Dr. J. F. Chandler, Oregon, county health officer of Holt County, delivered an address on "Public Health" at the annual meeting of the teachers and directors of schools of Holt County, held at Oregon August 28 and 29.

Scientists in the United States Public Health Service are studying the nutritive value of crops in order to know which food crops are best in different regions for the prevention of pellagra.

What is believed to be the world's most complete catalog of the parasites of men and animals, indexed in every important language and in Latin for international use, is nearing completion at the National Institute of Health at Washington. Comprising several volumes it constitutes a compendium of the entire parasitological literature in the medical, zoological and veterinary professions. The catalog is expected to save at least 25 per cent of the time now spent by special research workers in seeking information regarding parasites.

The finished edition will represent the work of three men and their assistants: Dr. Charles W. Stiles, chief of the division of zoology at the Institute who has devoted a large portion of his life to preparing the catalog; Dr. Cooper Curtice, formerly of the Bureau of Animal Industry, and Dr. Albert Hassall, also of that bureau.

Dr. Stiles and Dr. Curtice each started the work in 1888 without the knowledge of the other's investigations, Dr. Stiles as a student at Leipzig, Germany, and Dr. Curtice at Washington. It was not until Dr. Stiles went to Washington some time later that he discovered they were both working on identical lines.

The first volume of the catalog was printed many years ago. Later, the Public Health Service published three volumes of a 1754 page subject catalog and 789 pages of hosts of parasites. Approximately 400 pages of another edition are now in press and 400 more pages will be ready for printing this fall.

In commemoration of the fiftieth anniversary of the inauguration of the Crede's method for the prevention of ophthalmia neonatorum the Robert Johnston Prizes for the years 1930 and 1931 have been consolidated and will be awarded for the best theses on "The Methods for the Prevention of Ophthalmia Neonatorum and Their Practical Value." The event will be celebrated at a joint meeting of the St. Louis Medical Society and the Ophthalmic Section of the Society, October 20.

The contest is open to the medical students of the Washington University School of Medicine and the St. Louis University School of Medicine. The winning essayist will receive \$40 in gold, the author of the second best thesis will be given \$20 in gold and the winner of the third will receive \$10 in gold. The prizes will be presented by Dr. John O. McReynolds, Dallas, Texas, president of the State Medical Association of Texas, who will be chairman of the judges. Dr. McReynolds will open a discussion on ophthalmia neonatorum which will be participated in by Dr. James S. Stewart, secretary of the State Board of Health; Dr. Max C. Starkloff, health commissioner of St. Louis; an obstetrician, an oculist and representatives of the Commission for the Blind. Dr. Joseph W. Love, Springfield, president-elect of the Missouri State Medical Association, has been invited to introduce Dr. McReynolds and address the meeting.

The Southeast Missouri Medical Association will hold its fifty-fifth annual meeting at Campbell, October 6 and 7, in the Methodist Church. Among many members of the State Medical Association who will appear on the scientific program are the following St. Louis physicians: Drs. Lee D. Cady, John D. Hayward, James F. McFadden, Neil S. Moore, J. Edgar Stewart and Norman Tobias. Dr. Russell A. Hennessey, Memphis, Tennessee, will be a guest of the association and will deliver an address. Dr. J. Lee Harwell, Poplar Bluff, is president of the association; Dr. W. S. Love, Charleston, recording secretary, and Dr. E. J. Nienstedt, Blodgett, corresponding secretary.

The following articles have been accepted for New and Nonofficial Remedies:

Sandoz Chemical Works, Inc.

Gynergen Solution 0.1 per cent

E. R. Squibb & Sons

Squibb Chocolate Vitavose

Winthrop Chemical Co., Inc.

Skiodan.



## OBITUARY

### LOUIS O. HOME, M.D.

Dr. Louis O. Home, Linneus, a graduate of the Missouri Medical College, St. Louis, 1884, died at his home, September 2, aged 75.

Dr. Home received his preliminary education in Linneus and after completing his medical studies began his practice there. He was one of the leading physicians of his community and was esteemed as such. While devoted to his profession, he was always interested in civic activities. During his forty-seven years of practice he had served the county as coroner, as county physician, as deputy state health officer and was pension examiner for many years. He was prominent in politics, a Democrat of the old school, and was an influential church worker.

Dr. Home was active in the Linn County Medical Society and was president of the society in 1926. His death is a distinct loss to his community and to the medical profession.

### JAMES BUNYAN EURE, M.D.

Dr. James B. Eure, Poplar Bluff, a graduate of Barnes Medical College, St. Louis, in 1897, died at his home June 12 of uremia after an illness of six months. He was 66 years old.

Dr. Eure was born in Nash County, North Carolina, of French lineage. Following his medical course in Barnes Medical College he began his practice in Brookfield and moved to Poplar Bluff in 1912 where he remained in active practice specializing in diseases of the eye, ear, nose and throat until the onset of his illness six months preceding his death.

During the World War Dr. Eure was captain in the medical corps and was assigned to Camp Greene, Charlotte, North Carolina.

He was a progressive physician and kept abreast of the developments in medicine by postgraduate courses and the close study of the leaders in his field. He studied in Washington University School of Medicine, Chicago Polyclinic and the Eye and Ear Infirmary of New York.

Dr. Eure allied himself with organized medicine early in his career and was active in the Linn County Medical Society during his residence in Brookfield and in the Butler County Medical Society after moving to Poplar Bluff. He was a member of the Butler County Medical Society, the State Medical Association, the Grand River Medical Society and the Frisco System Medical Association.

Dr. Eure was always interested in civic and church activities and was highly esteemed both as a citizen and as a physician. His friends were many and his death brought sorrow to

them and is a loss to the medical profession and a loss to the community in which he lived. He was buried in Oak Grove Cemetery at Charleston and taps were sounded at the grave.

He is survived by his widow, Mrs. Alberta Eure.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

Lafayette County Medical Society, May 23, 1931.

Putnam County Medical Society, July 7, 1931.

Schuyler County Medical Society, August 15, 1931.

### CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met September 10 with Dr. and Mrs. A. H. Baldwin, Pleasant Hill, at the clubhouse on Baldwin Lake. Dinner was served by the Auxiliary at six o'clock.

Dr. O. Jason Dixon, Kansas City, addressed the Society on "Osteomyelitis of the Skull Following Sinus Infection," and presented an interesting case. "Undulant Fever" was the subject of a paper read by Dr. L. V. Murray, Pleasant Hill.

Both papers were thoroughly discussed.

Dr. Katharine B. Richardson, of Mercy Hospital, Kansas City, spoke before the members of the Auxiliary and the Society on the work accomplished at Mercy Hospital.

The following were present: Drs. M. P. Overholser, David S. Long, J. S. Triplett and A. R. Elder, of Harrisonville; Drs. A. H. Baldwin, L. V. Murray and C. L. Conrad, of Pleasant Hill; Dr. I. N. Parrish, Freeman; Dr. A. H. Brierly, Peculiar; Dr. T. W. Adair, Archie; Dr. William Beckman, Strasburg.

The next meeting of the Society will be held in Harrisonville at which time officers for the coming year will be elected.

L. V. MURRAY, M.D., Secretary.

## GREENE COUNTY MEDICAL SOCIETY

The first fall meeting of the Greene County Medical Society was held in the Springfield Public Library, September 11, with thirty-five members in attendance. Preceding the meeting a dinner was given at the Ontra Cafeteria in honor of our guest, Dr. L. F. Barney, Kansas City, Kansas.

The scientific program consisted of two papers by Dr. Barney, one on "The Treatment of Acute Generalizing Peritonitis," and the other on "Spinal Anesthesia."

The members thoroughly enjoyed Dr. Barney's presentation and entered into a discussion of the subjects.

September 25 is the date of the next meeting.

J. NEWTON WAKEMAN, M.D., Secretary.

## WOMAN'S AUXILIARY

### Officers 1931-1932

President, Mrs. U. J. Busiek, Springfield.

President-Elect, Mrs. David S. Long, Harrisonville.

1st Vice President, Mrs. Ralph W. Holbrook, Kansas City.

2nd Vice President, Mrs. R. S. Kieffer, St. Louis.

3rd Vice President, Mrs. H. M. Grace, Chillicothe.

4th Vice President, Mrs. W. T. Martin, Albany.

Corresponding Secretary, Mrs. F. T. H'Doubler, Springfield.

Recording Secretary, Mrs. J. A. Chenoweth, Joplin.

Treasurer, Mrs. L. S. James, Blackburn.

Auditor, Mrs. J. J. Gaines, Excelsior Springs.

Directors (2 years): Mrs. George Ruddell, St. Louis; Mrs. G. B. Schulz, Cape Girardeau; Mrs. S. P. Howard, Jefferson City; Mrs. H. W. Carle, St. Joseph; Mrs. Calloway, Nevada. (1 year): Mrs. C. B. Summers, Kansas City; Mrs. J. D. Guyot, Higginsville; Mrs. D. A. Barnhart, Huntsville; Mrs. John A. Powers, Warrensburg; Mrs. P. L. Patrick, Marceline.

## CASS COUNTY AUXILIARY

The Woman's Auxiliary to the Cass County Medical Society met with Mrs. A. H. Baldwin, Pleasant Hill, Thursday, September 10. The meeting was held at the clubhouse on Baldwin Lake. A picnic supper for members of the Medical Society and the Auxiliary preceded the meeting.

The Auxiliary voted to have a benefit bridge at the home of Mrs. M. P. Overholser, Harrisonville, in December. The proceeds are to be used in placing *Hygeia* in the rural schools of the county. This will be our educational work for the year.

The members also voted to sponsor a county wide fruit donation to Mercy Hospital as our philanthropic work.

Dr. Katharine B. Richardson, of Mercy Hospital, Kansas City, spoke to the joint assembly of physicians and auxiliary women.

The following were present: Mrs. M. P. Overholser and Mrs. David S. Long and son, of Harrisonville; Mrs. R. M. Miller, Belton; Mrs. H. A. Brierly, Peculiar; Mrs. I. N. Parrish, Freeman; Mrs. William Beckman, Strasburg; Mrs. A. H. Baldwin and Mrs. L. V. Murray and daughter, of Pleasant Hill; Mrs. J. H. Fletcher, Drexel; Mrs. Hare and daughter, Mrs. Mustarde, of Grandview.

MRS. L. V. MURRAY, Secretary.

## TRUTH ABOUT MEDICINES

### NEW AND NONOFFICIAL REMEDIES

**MEAD'S POWDERED BREWER'S YEAST.**—Dried brewer's yeast harvested under aseptic conditions; it assays approximately 13 vitamin B<sub>1</sub> units per gram and approximately 1 vitamin B<sub>2</sub> unit per gram. The product is proposed for prophylaxis and treatment of conditions arising from deficiency of the vitamin B complex in the diet. It is also proposed as a means of stimulating the appetite and growth and for a beneficial effect in lactation. Mead Johnson & Co., Evansville, Ind. (Jour. A. M. A., May 2, 1931, p. 1477.)

**DIPHTHERIA TOXOID.**—A diphtheria toxoid (New and Nonofficial Remedies, 1930, p. 364) prepared from diphtheria toxin by treatment with formaldehyde. It is marketed in packages of one immunization treatment and in packages of fifteen immunization treatments. Eli Lilly & Co., Indianapolis.

**AMPULES SOLUTION OF NUPERCALINE—Ciba, 25 c.c.**—A 1:1,000 solution of nupercaine—Ciba (Jour. A. M. A., March 21, 1931, p. 946). Ciba Co., Inc., New York.

**SCHIEFFELIN PSYLLIUM SEED.**—A brand of psyllium seed—N. N. R. (New and Nonofficial Remedies, 1930, p. 311). Schieffelin & Co., New York. (Jour. A. M. A., May 16, 1931, p. 1694.)

**DIPHTHERIA TOXIN FOR SCHICK TEST IN PEPTONE SOLUTION.**—A diphtheria toxin (New and Nonofficial Remedies, 1930, p. 380) made by growing diphtheria bacilli in broth, ageing and diluting with peptone solution according to W. E. Bunney. The product is ready for use. It is marketed in packages of one syringe containing diluted diphtheria toxin sufficient for one test and in packages of one vial containing sufficient for ten tests. As a means of control, diphtheria toxin heated in 75 C. and diluted with peptone solution is supplied. Lederle Laboratories, Inc., Pearl River, N. Y.

**POLLEN ALLERGEN SOLUTIONS—Squibb.**—The following pollen allergen solutions—Squibb (New and Nonofficial Remedies, 1930, p. 27, Jour. A. M. A., December 20, 1930, p. 1913), marketed in 5 c.c. vials, has been accepted: Cottonwood Pollen Allergen Solutions—Squibb. The following pollen allergen solutions—Squibb (New and Nonofficial Remedies, 1930, p. 27; Jour. A. M. A., December 20, 1930, p. 1913), marketed in 5 c.c. vials, in treatment set packages A, B, C and D, and in three vial treatment packages, has been accepted: Grasses Combined Pollen Allergen Solutions—Squibb (Bermuda Grass, June Grass, Orchard Grass, Red Top, and Timothy, in equal parts). E. R. Squibb & Sons, New York. (Jour. A. M. A., May 30, 1931, p. 1872.)

**SYRUP No. 112 EPHEDRINE HYDROCHLORIDE.**—It contains ephedrine hydrochloride—Lilly (New and Nonofficial Remedies, 1931, p. 175) 0.22 Gm., in 100 c.c. (1 grain per fluidounce) and alcohol, 12 per cent. Eli Lilly & Co., Indianapolis, Ind.

**ALPHA NAPHTHOL CAMPHOR OIL (Carel).**—It contains alpha-naphthol (New and Nonofficial Remedies, 1931, p. 292), 0.5 Gm.; camphor, 0.5 Gm.; cottonseed oil, 12 Gm.; liquid petrolatum to make 100 gm. Carel Laboratories, Redondo, Calif.

**ALPHA-NAPHCO CAMPHOR NASAL UNGUENT.**—It contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 2 Gm.; camphor, 2 Gm.; petrolatum to make 100 Gm. Carel Laboratories, Redondo, Calif.

**CALCIUM GLUCONATE—Pfizer.**—A brand of calcium gluconate—N. N. R. Chas. Pfizer & Co., Inc., Brooklyn, N. Y.



**QUINIOBINE.**—Quinine bismuth iodide rendered soluble in olive oil by means of lecithin. Each c.c. contains 0.03 Gm. of bismuth, 0.03 Gm. of quinine, 0.075 Gm. of iodine, and 0.22 Gm. of lecithin. Quiniobine is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (New and Nonofficial Remedies, 1931, p. 94). It is claimed that, since in Quiniobine the quinine bismuth iodide is soluble, the injections are usually only slightly painful and the dosage is more accurate than with suspensions of quinine bismuth iodide. It is supplied also in the form of 2 c.c. ampules. Spicer & Co., Glendale, Calif. (Jour. A. M. A., June 6, 1931, p. 1953.)

**CALCIUM GLUCONATE.**—It contains calcium equivalent to not less than 12.4 nor more than 12.8 per cent of calcium oxide. Calcium gluconate is used to obtain the therapeutic effects of calcium. It is more palatable than calcium chloride for oral administration and for hypodermic or intramuscular use is nonirritant.

**CONCENTRATED POLLEN ANTIGENS.**—Lederle.—Liquids obtained by extracting the protein from the pollen of plants with a liquid consisting of 67 per cent of glycerin and 33 per cent of a buffered saline solution. For a discussion of the actions and uses, see Allergic Protein Preparations, New and Nonofficial Remedies, 1931, p. 23. Concentrated pollen antigens—Lederle are marketed in packages of fifteen syringes containing increasing dosages; also in supplementary treatment packages of five syringes. The following product has been accepted: Concentrated Pollen Antigen (Lederle) Ragweed Combined (Common and Giant Ragweed in equal parts). Lederle Laboratories, Inc., Pearl River, N. Y. (Jour. A. M. A., June 13, 1931, p. 2036.)

**ALPHA-NAPHC CONES.**—Each cone weighs 2.65 Gm. and contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 0.32 Gm., in a base composed of boric acid and sodium bicarbonate, equal parts. Carel Laboratories, Redondo, Calif.

**ALPHA-NAPHC MENTHOL SUPPOSITORIES.**—Each suppository weighs 5.2 Gm. and contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 0.356 Gm., and menthol, 0.014 Gm., in a base composed of oil of theobroma and yellow wax. Carel Laboratories, Redondo, Calif.

**ALPHA-NAPHC RECTAL SUPPOSITORIES.**—Each suppository weighs 2 Gm. and contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 0.1376 Gm., in a base composed of oil of theobroma and yellow wax. Carel Laboratories, Redondo, Calif.

**ALPHA-NAPHC ZINC STEARATE CAMPHOR OINTMENT.**—It contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 7.5 Gm.; camphor 1.5 Gm.; zinc stearate, 10 Gm.; starch, 10 Gm.; petrolatum to make 100 Gm. Carel Laboratories, Redondo, Calif.

**ALPHA-NAPHC ZINC STEARATE POWDER.**—It contains alpha-naphco (New and Nonofficial Remedies, 1931, p. 293), 3.65 Gm.; zinc stearate, 8.75 Gm., talcum to make 100 Gm. Carel Laboratories, Redondo, Calif. (Jour. A. M. A., July 11, 1931, p. 103.)

**LIVER EXTRACT.**—Lederle.—A concentrated, water soluble, nitrogenous, nonprotein fraction obtained from fresh mammalian liver. It is supplied in vials containing an amount of powdered extract representing approximately 100 Gm. of fresh, whole liver. The product is proposed for use in the treatment of pernicious anemia and tropical sprue. Lederle Laboratories, Inc., Pearl River, N. Y.

**RABIES VACCINE (Hixson).**—An antirabic vaccine (New and Nonofficial Remedies, 1931, p. 358) prepared according to the general method of David

Semple (phenol killed). The product is marketed in packages of seven vials, in packages of fourteen vials and in packages of fourteen syringes. (Jour. A. M. A., July 18, 1931, p. 179.)

## FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

**ZED BISCUITS** (Zed Corporation, San Francisco, Calif.). Twice baked biscuits, leavened with baking powder, containing cracked whole wheat, whole wheat flour, rye meal, oat meal, wheat bran, bread flour, coconut oil, buttermilk (cultured), caramelized sugar, brown sugar and a mixture of orange, pineapple, grape and apple juices. Zed Biscuits are claimed to be wholesome, nutritious, regulative and delicious.

**MERRELL-SOULE POWDERED CULTURED SKIMMED LACTIC ACID MILK** (Akrelac) (Merrell-Soule Co., Inc., New York). This is a powdered artificial buttermilk, sourced with pure culture of lactic acid organisms (*Streptococcus lactis*). The use of the product is proposed by the manufacturer to rectify digestive disturbances under artificial feeding, for acute intestinal disturbances, prolonged malnutrition, and complementary feeding.

**WHEATENA** (The Delicious Wheat Cereal) (The Wheatena Corporation, Wheatonville, Rahway, N. J.). A toasted granular wheat cereal composed of the embryo, essentially all of the endosperm and the major portion of the bran of red winter wheat. Wheatena is claimed to be a quick cooking wheat breakfast cereal with an individual toasted flavor requiring from two to three minutes for preparation. (Jour. A. M. A., May 2, 1931, p. 1478.)

**OLDE-TYME BREADS** (Family, Round, Hearth and Pullman) (The City Bakery, Bellefonte, Pa.). White bread loaves in wax-paper or "glassine" wrappers.

**SLICED PURITY BREAD** (Purity Baking Co., Ottawa, Ill.). A sliced white bread made by the sponge dough method.

**AMAIZO GOLDEN SYRUP** (Corn Syrup and Refiners' Syrup) (American Maize-Products Co., New York). A blend of corn syrup and refiners' syrup flavored with vanilla extract. (Jour. A. M. A., May 16, 1931, p. 1695.)

**MEAD'S POWDERED LACTIC MILK NONCURDLING NO. 1 WITH DEXTRI-MALTOSE** (Mead Johnson & Co., Evansville, Ind.). A powdered, spray-dried homogenized milk containing added lactic acid, maltose and dextrin. It is claimed that the mixture with water may be boiled without curdling or change of color or taste. It is proposed for use in infant feeding.

**LIBBY'S TOMATO JUICE** (Libby, McNeill & Libby, Chicago). A pasteurized tomato juice, seasoned with salt. It is claimed that the method of preparation tends to retain the vitamins of the original fruit. It is claimed that the product is a food which stimulates the appetite and that, like orange juice, is a protective food against scurvy.

**SELF RISING WASHINGTON FLOUR** (Wilkins-Rogers Milling Co., Washington, D. C.). A mixture of wheat flour with baking powder leavening and seasoning—calcium acid phosphate, sodium bicarbonate and salt. The flour is claimed to be adapted to biscuit, pastry and cake baking. (Jour. A. M. A., May 23, 1931, p. 1780.)

**VERMONT MAID BREAD** (Vermont Baking Co., White River Junction, Vt.). A white bread made by the sponge dough method.

## BOOK REVIEWS

**CLINICAL NUTRITION AND FEEDING IN INFANCY AND CHILDHOOD.** By I. Newton Kugelmass, M.D., Ph.D., Sc.D., Associate Attending Pediatrician, Fifth Avenue Hospital, etc. 37 illustrations. Philadelphia and London: J. B. Lippincott Company. Price \$6.00.

During the past years several books on nutrition and feeding in infancy and childhood have appeared and among them to be commended in many ways is this volume by Dr. Kugelmass.

As the preface states, it is written for the general practitioner. The everyday aspect of pediatric practice is covered in the eleven chapters and excellent tables are found throughout.

This volume will prove a valuable addition to the physician's library. J. A.

**THE LONG TREK.** Around the World with Camera and Rifle. By Richard L. Sutton, M.D., Sc.D., LL.D., F.R.S. (Edin.), Fellow of the Royal Geographical Society; Member of the French Geographical Society; Professor of Dermatology, University of Kansas. With more than two hundred illustrations from photographs made by the author and by Richard L. Sutton, Jr., A.M., B.Sc., M.D., Fellow of the Royal Geographical Society. St. Louis: The C. V. Mosby Company. 1930. Price \$5.00.

Few physicians can be devoted to their profession and be successful in it and at the same time follow a hobby enthusiastically. But such a person is Dr. Richard L. Sutton, of Kansas City, internationally known for his achievements in dermatology and the author of the popular textbook "Diseases of the Skin," now in the eighth edition. Dr. Sutton is first of all a successful and loyal physician. After that he is a naturalist, globe-trotter, hunter of big game and proud of his achievements in what we might call his sub-hobby—photography. In 1923-1924 Dr. Sutton was the special representative of the department of natural history of the University of Missouri on an African expedition and on expeditions for the same department to Indo-China and India in 1925-26 and he headed an African-Asiatic expedition in 1929-30.

"The Long Trek" is not Dr. Sutton's first story of his big game hunting. In 1924 he told us about "An African Holiday" and in 1926 followed some "Tiger Trails in Southern Africa."

"The Long Trek" has a significance not attached to his previous books on big game hunting. It is the fulfillment of a promise made to his son, Richard L., Jr. "This brief narrative," says the author in his preface, "is really the story of a birthday party. Many years before, I had promised my young son that when he attained his majority, provided his college and university records warranted it, we would indulge in a real celebration."

Written in a chatty and intimate style one almost forgets the book in hand and imagines he is hearing the story from the lips of the author. The book is laden with information of the country and of the natives and their habits, but it is only after completing the volume that one realizes this for the reading is pure enjoyment, not study. There are numerous comments that bring many chuckles.

One could easily agree with Richard Junior's remark that his father "would rather photograph a well-decorated native than kill an elephant carrying two hundred pounds of ivory."

The book is copiously illustrated and each picture is extremely interesting. The size of the type and the quality of the paper add to the enjoyment of the reading.

**EMERGENCY SURGERY.** By Hamilton Bailey, F.R.C.S. (Eng.), Late Surgeon, Dudley Road Hospital, Birmingham; Assistant Surgeon, Liverpool Royal Infirmary; and Surgical Registrar, London Hospital. Vol. I, Abdomen and Pelvis. With 324 illustrations, some of which are in color. New York: William Wood and Company. 1930. Price \$8.00.

As the name implies, the author attempts to deal only with acute conditions of the abdomen and pelvis demanding urgent, quick treatment. It is hardly to be expected that any two men doing emergency surgery should always approve the same procedures.

The diagnosis of acute conditions in the abdomen and pelvis is often difficult and treatment may be questionable. Furthermore, after a diagnosis is made treatment may not be 100 per cent satisfactory, hence just differences as to the procedure arise. For example: the reviewer can hardly have the faith in the intravenous use of mercurochrome which Mr. Bailey exhibits for acute appendicitis.

The advice given in the text is sound. The methods of treatment are given in a clear, concise manner. In short, the book is well worth a place in the library of every young surgeon and can be consulted with profit. The book is well illustrated and printed.

H. S. V

**AN INTRODUCTION TO GYNECOLOGY.** By C. Jeff Miller, M.D., Professor of Gynecology, Tulane University School of Medicine; Chief of the Department of Gynecology of Touro Infirmary; Senior Visiting Surgeon, Charity Hospital, New Orleans. Illustrated. St. Louis: The C. V. Mosby Company. 1931. Price \$5.00.

This beautiful little textbook is completely dominated by the newer conception of physiology of the pelvic organs and by our limited knowledge of endocrinology. This is true in spite of the author's statement that "our present knowledge of the glands of internal secretion is in most respects speculative and inaccurate."

As an introduction to gynecology the book covers the field concisely and well. W. C. G.

**FOOD ALLERGY.** Its Manifestations, Diagnosis and Treatment with a General Discussion of Bronchial Asthma. By Albert H. Rowe, M.S., M.D., Lecturer in Medicine in the University of California Medical School, San Francisco, Calif., etc. Philadelphia: Lea & Febiger. 1931. Price \$5.00.

This monograph is the clinical experience of the author with the elimination diets which he promulgated in 1928 to aid in the clinical study of ailments suspected of being allergic in nature.

The book contains detailed descriptions of the diets and special recipes and the manner of employing them. In addition, there are separate chapters detailing the clinical results with these diets by means of case histories in a diversity of gastrointestinal conditions; in bronchial asthma; in eczema, urticaria, angioneurotic edema and generalized edema; in migraine and neuralgia; in allergic toxemia due to food allergy; in perennial hay fever; in arthritis, arthralgia, intermittent hydrarthrosis, dysmenorrhea, cardiovascular disturbances, Henoch's purpura; in genito-urinary conditions; in divers



nervous manifestations, and in infancy and childhood. These chapters are replete with references to the current medical literature on food allergy. The literature on food allergy has been accurately summarized and forms a valuable feature of the text.

The therapeutic results are monotonously successful, even in ailments which, hitherto, have never been touched by the suspicion of an allergic strain. The variety of clinical conditions which are reported as being benefited by these diets and therefore considered as allergic is astounding. The evidence submitted, however, is inadequate to predicate that all these conditions are on an allergic basis, so that one gains the impression that the opinions expressed and the results obtained are tinged by premature enthusiasm rather than by scientific data. One hopes that the future will sustain the contentions of the author, that all these conditions are manifestations of allergy.

C. H. E.

**THE ANATOMY OF THE NERVOUS SYSTEM.** From the Standpoint of Development and Function. By Stephen Walter Ranson, M.D., Ph.D., Professor of Neurology and Director of the Neurological Institute, Northwestern University Medical School, Chicago. With 341 illustrations, some of them in colors. Fourth edition, revised. Philadelphia and London: W. B. Saunders Company. 1931. Price \$6.50.

The author of this well known work has now revised it for the fourth time. The book needs no introduction as it is well known for its clarity and simplicity of presentation. In this new edition, Dr. Ranson has added a complete series of sections of the brain stem and basal ganglia and, what is more important for the student, these are accompanied by a key figure showing the plane in which the section was cut. Owing to the addition of these sections the book is slightly larger than the previous editions but little has been added to the text itself. The new illustrations are most valuable since they enable the student to get a three dimensional viewpoint of the nervous system. The book grows better with each new edition.

H. H. C.

**TEXTBOOK OF HISTOLOGY.** For Medical and Dental Students. By Eugene C. Piette, M.D., Pathologist and Director of the Laboratory of the West Suburban Hospital, Oak Park, Illinois, etc. With 277 illustrations, some in color. Philadelphia: F. A. Davis Company. 1931. Price \$4.50.

This very comprehensive textbook of histology will be a welcome addition to the library of the histologist. The author has kept the size of the book down to reasonable dimensions in spite of the inclusion of most of the newer discoveries. The student will find it attractive because it reads easily and important statements are indicated in bold face type. A series of illustrations will be new to most American readers. I believe this work will receive an enthusiastic reception for medical school work.

H. H. C.

**DIATHERMY: MEDICAL AND SURGICAL, IN OTOLARYNGOLOGY.** By Dan McKenzie, M.D., F.R.C.S.E., Consulting Surgeon, Central London Throat and Ear Hospital; Otolaryngologist to the French Hospital, London. New York: The Macmillan Company. 1930. Price \$4.00.

This small volume of 184 pages presents the use of diathermy as applied to diseases of the ear, nose and throat in a concise manner. It is shorn of use-

less words and can be clearly understood by the reader. The author not only gives the instruction and methods followed, but also relates his personal experiences in different types of cancer. He withholds his opinion in certain cases because to date results have not been conclusive enough to warrant dogmatic opinion but his results as reported of course carry great weight so the reception of this volume will be international.

J. D. C.

**THE PRACTICAL MEDICINE SERIES.** Comprising Eight Volumes of the Year's Progress in Medicine and Surgery. General Surgery. Edited by Evarts A. Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief of the Barnes Hospital and of the Children's Hospital, St. Louis. Series 1930. Chicago: The Year Book Publishers. Price \$3.00.

This volume of more than eight hundred pages represents a well-assembled digest of the recent contributions to the field of general surgery. It is intimate in its presentation of personal experiences in the various branches of surgery. In its general and specific application there is no new idea, new drug, new method or new technic of any accepted practical importance whatever that is not given due consideration and adequate explanation. The editor's personal opinions and additions interspersed throughout the book add greatly to the value of the volume. Interesting and unusual reports of cases, monographic abstracts and the substance of important lectures given during the year are thoughtfully included.

The size of the volume has not been spared to afford the reader an excellent and complete reference to all advances made in this important field throughout the world. It therefore fills a definite need by supplying in one volume such information on any surgical subject or problem.

R. W. S.

**THE PRINCIPLES AND PRACTICE OF PERIMETRY.** By Luther C. Peter, A.M., M.D., Sc.D., F.A.C.S., Professor of Ophthalmology in the Graduate School of the University of Pennsylvania, etc. Third edition, thoroughly revised. Illustrated with 194 engravings and 5 colored plates. Lea & Febiger. 1931. Price \$4.50.

This is a well written, well illustrated book on an important but neglected part of ophthalmology. Parts 1 and 2, dealing with anatomy and physiology of the visual pathways, physiological principles and normal fields, give the reader a composite and clear-cut conception of the most advanced thought in this difficult but interesting subject. Part 3, on methods and technic of field taking, is most important, and Dr. Peters has justly emphasized the fact that standardization of technic must be attained before the presentation of a field taken by one individual will mean much to another. At least, the size and color of the target, background and intensity of light should be designated on every chart.

The rest of the book deals with the field findings in pathological conditions. Many of these cases have been proved by operation, observation or autopsy, and represent a tremendous amount of tedious and accurate work.

It is a good book for every ophthalmologist to have for reference on those occasional but important cases of brain pathology in which the ocular findings are an aid to diagnosis.

M. H. C.

# THE JOURNAL

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M. A. BLISS, M.D.

### THE MODERN OPERATION FOR CANCER OF THE BREAST\*

JABEZ N. JACKSON, M.D.

KANSAS CITY, MO.

I have had opportunity through a number of years of seeing a considerable number of cases of cancer of the breast that have been operated on in various places, presenting results that were far from satisfactory, and these observations have led me to believe that there are some very important points in surgical operations that oftentimes are small and overlooked.

The first point I wish to make is that we still have too many cases coming in so late that surgery can do little if any good, although this has improved vastly during the period of my lifetime. When I first started to practice I never saw a case of cancer of the breast until the diagnosis was so clear that a chambermaid could have made it. With the education that has been broadcast, reaching the women more generally, we find nowadays that we get a good many patients, probably 50 per cent, before clinical diagnosis can be made. Let me therefore say this, that the responsibility resting upon the shoulders of any physician who sees a woman with a cyst or a tumor, is enormous. When we bear in mind the simple fact that over 80 per cent of tumors in women's breasts are cancer, we can realize the tremendous responsibility that rests upon the person who handles the case. I have made this statement for many years and I want to reiterate, that in the early stage of tumor of the breast no human being is able to make a clinical diagnosis—that correct diagnosis should be made surgically before the clinical diagnosis is possible. In other words, 80 per cent of tumors in women's breasts are cancer and every tumor should be removed and its nature determined before the period of clinical diagnosis is possible. In this way we give many patients a better chance for favorable results.

Second, too many men still take it for granted that simple tumor free of signs of malignancy is nonmalignant, and therefore do incomplete operation for excision of the tumor. A few weeks ago I had a patient who had been operated on by a surgeon in the state who does a considerable amount of work. He did local excision and the patient came to me with massive recurrence, metastasis to the chest—absolutely hopeless. I wish to say that no one should attempt to perform an operation for tumor of the breast unless he is able from his own clinical experience to make the diagnosis of the tumor after excision, or is surrounded by laboratory and research pathologists who can supplement his opinion by microscopic diagnosis. I do not attempt to do more than is necessary, but I make a wide excision and in many cases the consistency of the cancer and the color are characteristic; but if I am in any doubt I have the laboratorian make a frozen section and stain it. The criticism has been made that frozen sections are not absolutely reliable. They are not, because we may not get the part of the tumor involved in malignancy, but I believe if a good surgeon uses his experience and judgment supplemented by the frozen section there will be small element of error. My rule is this: if on sectioning the tumor I think it is malignant and the pathologist says it is not, I treat it as malignancy anyway. If I think it is benign and the pathologist says it is malignant, I accept his decree. In other words, when there is doubt, play the game with the fact in mind that 80 per cent are cancer. I therefore say that the surgeon who undertakes to do operations for cancer of the breast, and who is not able to make a correct diagnosis, had better err on the side of doing too much rather than too little. Too many men who are doing surgery for cancer of the breast perform incomplete, inadequate operations for an important pathological condition. When we recognize that we are dealing with a disease that is striking at the life of the individual and which spreads through more or less definite channels, we realize it is the obligation of the

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surgeon to follow the disease as far as it is surgically possible and get rid of all cancerous infiltration.

What is the fundamental necessity in operation for cancer of the breast? In the first place, you have seen many cases where the entire skin of the breast is indurated. Here, wide extirpation is the fundamental necessity. The first clinical sign is skin fixation, and this indicates that a wide excision of the skin should be made covering the area of involvement. Whether we go to the extent of excision of the entire breast skin may be open to judgment, although in my own hands I am doing wider extirpations every year. In the old days when we had to resort to other methods of closure we sometimes hesitated.

Then every particle of the breast must be removed in case of cancer, not simply local section of the mass but all the adjacent tissue and every particle of the breast. We must remember that there are outlying lobes of the breast running into the axilla. When cancer spreads it spreads through lymphatic channels. Seventy-five per cent of the lymphatics go to the armpit, and in going to the armpit Warthin has shown that at least in certain instances these lymphatics pass through the pectoralis major muscle. Recently I saw one of our most experienced surgeons in Kansas City—who however does not do a complete operation for cancer—reoperate on a case in which the pectoralis muscle was one solid mass of cancer. I believe the pectoralis major muscle should always be removed. Next, we come to the pectoralis minor muscle. It is not necessarily to be removed from a pathological standpoint because there is never involvement of this muscle. On the other hand, we do remove it because getting it out of the way gives us a better exposure of the axilla and permits us to do the careful type of work that should be done there. Recognizing that 75 per cent of the lymphatics go to the axilla it becomes obvious that the total cleaning up of all the lymph-bearing tissue in the axilla is a surgical necessity, and here is where so many surgeons fail in completing the work because they get scared. As a matter of fact, this can be easily accomplished if we will do one thing, that is, after you have exposed the axillary fascia, make an incision outside the muscles and nerves down until you get a fixed fibrous base. Then you can take a piece of gauze and brush the whole thing off; then inside take your scissors and separate the vessels and ligate them without injury to the large axillary vessels. Our English friend, Handley a few years ago made the statement, probably true, that another route for the spread of cancer is through the fasciae. That means wide

extirpation, and so after having dissected behind the axillary vein we strip all the fascia on the surface except the muscles; then going up we make another incision on the chest wall and strip all the fascia from behind.

At least 25 per cent of recurrences are toward the mediastinal region, therefore there should be no manipulation of the chest. One of the risks of cancer is disseminating the cancer during operation. I think probably some cases are rendered hopeless by incorrect examination. Sometimes the doctor will squeeze deeply and thus oftentimes milk a cancer which may have become definitely localized—milk it into the lymphatics and thus make it a hopeless case.

After the axilla has been cleaned up we pass to the inside underneath the pectoralis major muscle and separate it close to the chest. In other words, we close off the lymphatics from the peripheral route, working from the periphery to the center. We have had a considerable number of local recurrences in the chest due to the fact that we did not realize that in the manipulation of the chest the cancer cells might leak from the proximal side, be left in the wound and be closed up, and thereafter we have recurrence. Therefore, we consider that the proper technic should guard against infection of the wound by leakage. As fast as we make dissection we cover it with hot sponges, and also the cut area. Finally when we get through with the operation we irrigate the cancer wound. We want to be sure there are no cells left in the wound. Whether this actually means anything or not is difficult to demonstrate, except that we can say that in the last ten years following this technic we have seen but one case of recurrence in the tissues of the chest. In other words, it proves two things: first, the value of protecting from contamination; also that with this technic we are able to get beyond at least the local invasion of the cancer and therefore the patient does not die from local recurrence but he dies because he was already beyond surgical aid at the time we instituted operation.

The results in cancer of the breast, after all, depend upon the patient coming early more than anything else. At Johns Hopkins after all operations done in this way the axillary glands are examined microscopically. If the axillary glands are not involved, they will call it an early case; if they are, they call it a late case. In cases operated on before axillary metastasis 85 per cent were cured, according to the old three-year basis; 75 per cent regardless of length of time. In the same clinic now the general average of cures is 40 per cent. What does that mean? It means the difference

between 40 and 85—45 women losing their lives annually from cancer of the breast. If they had been operated on early 85 could have been cured, whereas now it is 40.

In view of that statement it is important also to consider certain other factors in operative technic. The surgery must be made attractive, first to the patient and to her friends. For instance, a woman has been operated on by the old method of skin grafting. That woman comes home and shows her breast, with the thin skin over it to her neighbor—a horrible looking wound, and the neighbor will say, "It will be a long time before I submit to an operation of that sort." Therefore, the art of surgery is worth while and that can be thoroughly secured today by knowing certain principles of the plastic part of the operation. When I first did my flap operation I was at Johns Hopkins and in talking to Bloodgood he said he did not think much of the plastic operation. A year later I saw him at St. Louis at the American Medical Association. I had been invited to operate on a case of cancer of the breast and I took him out with me. Before I did anything farther I outlined the amount of skin to remove. He said it was more than necessary. I did the operation and closed the wound. Bloodgood was silent for some time, then finally he said, "Jackson, I have had such particularly good results with skin implants that I cannot help but think there is some special value in healing under skin graft." Skin graft has caused many a woman to die of cancer of the breast. That is part of the art of surgery and the patient is entitled to it.

In 1904 I heard Murphy, of Chicago, read a paper before the Western Surgical Association in which the suggestion was made that, to avoid the large amount of scar tissue, the lower portion of the pectoralis major muscle be turned around behind the vessels. But you are leaving the portion that is always subject to suspicion. Then the idea occurred to me, working in the anatomical room in my early days, that the pectoralis major muscle had skin behind as well as in front, so why not turn the skin from behind and fill that space. In attempting to do that we got this flap. Later I ran into a case where the tumor was well up where any attempt to give the wound a flap would give it an infected space, so I made an incision and took out all the skin of the pectoralis major and closed it up.

In closing one of these extensive wounds it is amazing what can be accomplished by extensive under-cutting of the skin. Our incision starts at the lower edge of the insertion of the pectoralis major, extends upward with a slight

convexity outward toward the middle of the clavicle and about two inches below the curving-over passes directly downward to the inner side of the breast to the level of the umbilicus.

The second part of the incision starting at the same fixed point follows the edge of the pectoral fold to the chest then curves along beneath the breast and finally downward to meet the end of the first incision. The first incision is under-cut up to the level of the clavicle and beyond the midline of the sternum. The second to the level of the latissimus dorsi and correspondingly below.

When these flaps are reflected we have an enormous looking wound but it is amazing how easily the flaps can be approximated.

The next thing which to my mind is most important is the after-treatment. Any man who treats breast amputation with the arm fixed down to the side of the body will have a disabled arm for a long time and possibly permanently. We put the arm into a dressing at the time of operation so the arm is held up. The patients are put to bed with the arm up above the head and in twenty-four hours they are obliged to use the arm and in the end they have a perfect functional result.

We use in the dressing the spica bandage. This roll is put on round and round the chest. There is no tension on that at all. Another thing, we never do an operation in which the scar runs transversely to the chest or bind the arm to the side.

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#### DISCUSSION

DR. CLAUDE J. HUNT, Kansas City: I have followed Dr. Jackson's work in breast surgery for some years and his results are outstanding because of the completeness of the operation he performs.

There are four things we might carry away from this discussion. First, the importance of a wide resection of skin overlying the breast lessens the possibility of local recurrence. Even with the removal of a large skin area he has very little trouble in closing the wound because of the extensive undermining of the skin in front, to the side and well toward the back. Large areas can easily be closed by ample under-cutting the skin flaps.

Second, he does a complete dissection of the axilla going well up into the fasciae, exposing the vascular structure throughout the entire axillary space. Then he works from the periphery toward the center at all times, avoiding any rough manipulation of the breast therefore doing away with the possibility, as he brought out, of squeezing the cancerous material out into the circulation, lymphatic and vascular.

Third, he does a very excellent thing in irrigating the breast. He irrigates it because there may be some loose cancer cells in the field of operation which may be washed out by irrigation. This washes out the debris and lessens again the possibility of local skin recurrence in the line of incision.

Fourth, his postoperative care relative to a future useful arm is important. He puts the arm up well over the head and insists that it remain there and



demands that they use it frequently after the first twenty-four hours. This prevents the fixation of the arm to the side. An arm that is partially fixed to the side and has only limited mobility is usually due to the fact that the arm was not put up properly following the operation and the patient was not made to elevate and move it in extreme directions before it became fixed by adhesions.

I think we are very fortunate to have Dr. Jackson from time to time present his operation for radical resection of the breast because it is only by repetition that these things are finally fixed in our minds and adopted.

DR. JULIUS ROTTER, Parsons, Kansas: I would like to ask the position of the arm during the operation.

DR. JACKSON, closing: Dr. Rotter brings up a very interesting point. We have one of these little side tables such as we use for instruments, and we shove that lateral to the main table and the arm is put out on that table. We use heavy bath towels for draping.

There is just one thing I neglected to say, and that is to mention the contamination of the wound during the operation. To begin with, by the method we use we outline the incision, raise the flap, and then before we pass into the dissection, cover that flap that is going to stay there with a hot bath towel so it will not be contaminated. Then as the dissection goes along, cover the area that has been cut and from which there might be leakage, and also the area where leakage might occur. But if despite these precautions there is leakage, we irrigate.

The question might be raised why we do not do the cautery operation. The cautery operation is one to be used where we are going to cut into cancerous tissue. I am talking about the case in which I believe we are operating so far away that we are not going into cancerous tissue. The cautery will not prevent contamination. Some of these cancers have gone so far that you know you have no chance to cure the patient—the treatment must be palliative, and for the destruction of the local mass the cautery may have its place. I used to be a good deal more pessimistic about cases where we found the axillary glands than I am now. I have had cases where we found the axillary glands where the patients have lived for some years. I realize now that that does not make the case hopeless. I am frank to say that I feel I am getting considerably more than 40 per cent cures, and I think most surgeons do.

The most important thing is to educate the women to realize that every tumor of the breast should be put in the hands of an expert capable of making the diagnosis as early as possible, and that man should remove the tumor before he is able with all his skill to make the diagnosis. Find out what the tumor is and then adapt your operation to it.

## HERNIA OF THE URINARY BLADDER\*

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Hernia of the bladder should always be in the mind of the surgeon who undertakes the operative treatment of any hernia, for its occurrence may be of surprising frequency and the recognition of the condition is imperative. Recognized before or during the operation, before the bladder has been injured it is not of

grave import, but if the bladder is injured and the wound is not noticed at the time and repaired, it is a menace to the surgical procedure and often to the patient's life. I am sure after a review of the literature that the condition is not forcibly enough impressed upon us.

Many splendid reviews<sup>1,2,3</sup> of the subject have appeared in the literature during recent years so I shall give only a brief historical and statistical review.

The first description of hernia of the bladder was by F. Plater,<sup>4</sup> of Basle, in 1550. In 1752 Verdier<sup>5</sup> collected 20 cases from the literature, Brunner<sup>6</sup> collected 180 cases up to 1896 and Watson<sup>1</sup> found 406 cases recorded up to 1923. Hernia of the bladder occurs in approximately 1 per cent of operations for the various types of hernia. Brunner<sup>6</sup> found 16 cases in 1841 hernia operations, Eggenberger<sup>7</sup> 75 cases in 6778 operations, Moynihan<sup>8</sup> 23 cases in 2543 operations and Lucas-Championniere<sup>9</sup> 6 cases in 900 operations.

The condition is rarely recognized before operation and often it is not even suspected during operation. Alessandre<sup>10</sup> in 223 cases found that a preoperative diagnosis was made in only 5, and in 147 cases where it was recognized at operation the bladder remained intact in only 11 instances. Watson<sup>1</sup> reports that in 347 cases the diagnosis was made before operation in 25 cases, during operation in 279 and after operation in 43. He found in the 406 cases he collected from the literature that the bladder was damaged in 194 instances.

In recent years Farr,<sup>2</sup> Robbins,<sup>11</sup> Levy,<sup>12</sup> and others have reported cases of inguinal and ischiorectal bladder herniae recognized before operation and demonstrated by filling the bladder with opaque solutions and making radiographs.

The condition occurs more frequently in men than in women. Coley, quoted by Baker,<sup>13</sup> states that they are most frequently found in men between 50 and 60 and in women between 30 and 40. Oliva<sup>14</sup> reports 16 cases in children and Watson<sup>1</sup> found 30 cases in children. The youngest case on record was that of a child aged 18 months. The inguinal type is most frequent, comprising approximately 80 per cent, the femoral is next with 20 per cent, the perineal, sciatic, ventral and obturator occasionally occurring. The inguinal type, direct or indirect, more often occurs in men, the femoral type is usually found in women.

The etiology of bladder hernia is more or less theoretical and the attempts to explain the condition are based upon (1) accumulation of prevesical fat; (2) weakened abdominal walls; (3) trauma of abdominal wall; (4) distention of bladder; (5) bladder diverticula; (6) obesity; (7) pregnancy; (8) old age, (9) congenital.

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Jaboulay and Villard<sup>15</sup> divided bladder hernia into three varieties, the classification depending upon the relation of the peritoneum to the herniated bladder, viz.: First, extraperitoneal, where the bladder is without the peritoneum; second, paraperitoneal, where the bladder is beside the peritoneum; third, intraperitoneal, where the bladder is within the peritoneum. The paraperitoneal type is the most frequent with the intraperitoneal type next in occurrence.

The symptoms of bladder hernia, as may be judged from the infrequent preoperative diagnosis, are obscure. It is hard to believe that any diagnostic symptoms are presented since approximately 93 per cent of the cases are undiagnosed before operation. If the symptoms were at all constant, certainly with our methods of investigation more preoperative diagnoses would be made. Most patients present themselves because of the swelling in the given area and are subjected to operation for hernia without the bladder involvement being suspected. Watson<sup>1</sup> called attention to the functional symptoms, such as dysuria, frequency of urination and urination in two stages. Other writers have reported cases where the patient had to lie down to empty the bladder. In a few large herniae of the bladder the patients found it necessary to lift the tumor up in order to empty the bladder completely. Baker<sup>13</sup> insists that all the symptoms mentioned may occur in other diseases of the genito-urinary system. Even the two-stage urination is seen in bladder diverticula. None of the symptoms would necessarily lead to the deduction of bladder hernia unless the surgeon was on the alert for the condition. It is interesting that in many of the cases reported a definite history of bladder symptoms was elicited after the operation where none was given prior to the procedure. It is possible that the patients become so accustomed to their symptoms that they do not consider them of importance, or perhaps we are more diligent in asking leading questions to prove something that we feel should have existed.

Identification of bladder herniae may be made before operation, (1) when the hernia is enlarged with a filled bladder and reduces in size during the urination; (2) when the hernia presents a round or oval tumor and is dull on percussion; (3) when a sound passed into the bladder presents its tip in the hernia sac under the skin; (4) by filling the bladder with air or water causing the hernia to enlarge; (5) by cystoscopic examination; (6) by roentgen ray examination after filling the bladder with one of the solutions opaque to the roentgen ray.

At operation, bladder involvement may be proved by (1) aspiration of the tumor with a

fine hypodermic needle and identifying the fluid aspirated by litmus paper. (Urine is the only body fluid giving acid reaction; if urine is neutral or alkaline the test is valueless.) (2) The presence of yellow prevesical fat; (3) the typical vascular picture and musculature of the bladder wall; (4) passing a sound into the portion of the bladder involved; (5) filling the entire bladder with air or water; (6) transillumination of the tissues during dissection with Cameron light.

If the patient is operated upon under local anesthesia he will usually complain of bladder discomfort or have a desire to urinate if the involved portion of the bladder is manipulated. The safest and best way is always to prove that the bladder is not involved in the sac, beside it, or presenting as an independent hernia.

Following operation, painful urination, bladder tenesmus, bloody urine, urine from the wound, or signs of fulminating peritonitis may suggest or prove bladder hernia with injury of the viscus. Many unsuspected cases have been found at postmortem.

The condition must be differentiated from hydrocele, enterocoele, cysts of the spermatic cord and epiplocele.

Complications of bladder hernia are infrequent, though inflammation or strangulation of the involved portion may occur.

In a relatively small group of herniae that I have seen in my personal practice I have encountered 3 cases of bladder hernia; one a recurrent hernia, in a man, aged 63; one in a man, aged 56, where a traumatic indirect hernia was accompanied by a direct bladder hernia of the paraperitoneal type, the bladder portion being a definite diverticulum; and the third case in a man, aged 21, where the bladder hernia accompanied a simple indirect inguinal hernia. These three cases present in a measure the different types of inguinal herniae found. They emphasize to me that there is no given type of patient in whom bladder hernia should be suspected.

#### CASE REPORTS

Case 1. A white man, aged 63, had a recurrent direct, right inguinal hernia. He had suffered with moderate bladder symptoms for several years but before operation the symptoms of nycturia and frequency were ascribed to prostatism and bladder hernia was not suspected. Operation was performed under local anesthesia; the dissection and exposure of the sac was difficult because of the scar tissue due to two previous operations. The hernia opening was large but most of the contents of the wide-mouthed sac were easily reduced. During the reduction the patient complained of a marked desire to urinate and of definite pain in his bladder. Because of these symptoms involvement of a portion of the bladder was suspected and I proceeded with all possible care. In spite of this caution, a small opening was made into a smooth-walled cavity and the interior of the bladder was recognized. The amber-colored fluid was found to be acid and identified as



urine. The opening in the bladder made the rest of the operation more simple for I was able to proceed with little difficulty to free the rest of the sac. After intravesical palpation of the prostate, the opening in the bladder was closed in double layers, the second covering the first. The sac was closed by mattress sutures and the radical repair was carried out, suturing a portion of the lower part of the sheath of the rectus over to Poupart's ligament. The cord was transplanted and the deep fascia overlapped and sutured. A cigaret drain was left through the lower end of the incision. The drain was removed in 48 hours, the wound healed by first intention, and there has been no recurrence of the hernia in the intervening three years.

Case 2. White man, aged 56. On November 26, 1930, while lifting a can of milk weighing about 80 pounds, the patient slipped and fell in a flexed, cramped position. He immediately felt a sharp pain in his left groin and experienced nausea and shock. The pain persisted and increased. When I saw him two hours later there was a swelling the size of the end of my thumb presenting through the left external inguinal ring that was tender and painful to touch. The swelling was easily reduced with the patient in a prone position but the reduction did not entirely relieve the pain. He stated that four years before he had a similar injury while lifting some heavy timbers and that there had been a lump in his groin for about six months. At first it was painful but the pain gradually subsided and the lump finally disappeared. He thought the present trouble was a recurrence of that of four years previously. There was no preoperative history of bladder or urinary symptoms. Operation on December 6, 1930, was under spinal anesthesia and the usual left oblique hernia incision was made. The cord was normal and a nonadherent, empty, indirect hernia sac was found. Due to the fact that the patient was in a moderate Trendelenburg position because of the spinal anesthesia, I experienced a little difficulty in proving the existence of the sac. However, when the patient strained the sac finally filled with omentum. To the mesial side of the sac, internal to the deep epigastric vessels, there was a definite mass of adipose tissue, 5 x 4 cms. On account of the bright yellow color I was at once suspicious of bladder complications. Dissection of the lipomatoid mass finally allowed it to be separated into two portions; one contained a narrow, empty sac, which was proved to be continuous with the peritoneal cavity by passing a curved clamp through an opening in the indirect hernia sac into the cavity; the second was a thin-walled pouch, 5 cms. long and 1.5 cms. wide, having a narrow neck of 6 mm. diameter. When the patient strained this sac filled with fluid. After aspiration the acidity and physical properties of the fluid caused me to identify it as urine and to recognize the sac as a thin-walled bladder diverticulum. On close examination the tissue suggested a very thin-walled portion of the bladder but it certainly did not look like the usual wall of the urinary bladder. The two sacs were completely freed, the neck of the peritoneal sac was ligated, cut off, and the proximal end pushed back into the peritoneal cavity. The narrow neck of the bladder diverticulum was ligated and the portion distal to the ligature removed. The stump was buried by infolding the adjacent bladder wall over it. The narrow slit-like opening through which the two sacs had passed was closed with two chromic sutures. The indirect sac was freed, transfixed, tied, and the distal portion removed. The stump was pulled up under the muscles and a typical Halsted repair was done, leaving a small rubber tissue drain through the lower end of the wound. The drain was removed in 36 hours and the wound healed by first intention. The patient had

some blood in his urine during the first week. His convalescence and recovery to date has been ideal. After operation the patient called my attention to an improvement in his "kidney action," and on questioning him he told me that for a number of years he had been troubled with frequency and discomfort when his bladder was filled. He had become so accustomed to that condition that he did not think it worth while to mention it before operation. When seen a few days ago he stated that he was free of bladder symptoms.

Case 3. A white man, aged 21, was operated upon as a case of simple, reducible, indirect, right inguinal hernia by a colleague of mine and I saw him in consultation forty hours after operation. Before operation there had been no history of bladder symptoms. The operation was done under local anesthesia and was extremely difficult because the sac along its inner margin was markedly adherent to the underlying tissue. While it was being freed the patient complained of pain in his bladder with a desire to urinate. When I saw the patient forty hours after operation he presented the typical facies of peritonitis; his pulse was rapid, he complained of dysuria, with frequent urination of one to two ounces of bloody urine. The abdominal muscles were rigid and there was moderate abdominal distention. Under ether anesthesia the wound was opened and the various layers were found infiltrated with bloody fluid. Retraction and examination of the deeper tissues showed a wound in the bladder wall, approximately 2 x 1.5 cms. The patient was in such an extreme condition that the edges of the bladder wound were caught with Allis's clamps, chromic sutures were placed and tied at the upper and lower angles of the wound, and a 1 cm. rubber tube placed in the bladder, as in a suprapubic cystostomy. After irrigation with saline solution the wound was loosely packed with gauze above and below the drain. A low left rectus incision was then made. The peritoneum was a dusky red color and there was free blood-tinged acid fluid in the peritoneal cavity with a large collection of free fluid in the pelvic cavity. The free fluid was absorbed by gauze and the cavity flushed with saline solution. Stab cigaret drains extending into the pelvis were placed through the left lower quadrant and above the symphysis. The left rectus incision was closed except for a cigaret drain in the lower angle that extended into the peritoneal cavity. After 24 hours all the peritoneal drains were loosened and withdrawn about one inch, and each day they were shortened until the fifth day when they were entirely removed. The tube in the bladder was replaced by a smaller one on the fifth day and was removed on the tenth day. The bladder fistula closed in four weeks and the patient made a complete, uneventful recovery.

#### COMMENT

If bladder hernia is suspected before operation, every effort should be made to prove its presence. During all operations for hernia the possibility of bladder hernia should be kept in mind. Any undue thickness of the sac particularly of the internal and posterior walls should be carefully examined by palpation, transillumination and other means to exclude bladder attachment. Positive information is often given by passing a catheter or sound with or without distending the bladder, though distention with air or water at times may be helpful. Whenever there is a collection of pre-hernial fat or fat of the color peculiar to the

bladder region, look with care for a protrusion of a portion of the bladder or a bladder diverticulum. Bladder pain elicited during operation or desire to urinate indicates the nearness of the bladder, if not its involvement.

If a bladder hernia is found it should if possible be reduced and retained in place without opening the organ. If the bladder wall is injured either accidentally or on purpose it should be closed with a double layer of sutures, the second burying the first, and on no account should the sutures pass through the bladder mucosa. A drain should be left to the bladder suture line to take care of any leakage, for we must ever bear in mind that the wounded bladder, even though intentionally wounded, is a potential source of grave danger. When the bladder injury is recognized after operation immediate reopening of the wound with suture or drainage of the bladder, depending on the individual case, is indicated. If there is extravasation of urine into the peritoneal cavity, the abdomen should be opened, the cavity flushed with saline solution and liberal drainage installed. Prompt treatment is urgent, for the gravity increases rapidly with each hour's delay.

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## Symposium on Appendicitis

### DEFINITE APPENDICEAL SYMPTOMATOLOGY\*

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Your committee has set me a somewhat difficult task in giving me the title "Definite Appendiceal Symptomatology." It may be useful

to analyze the recognized symptoms of appendicitis according to the anatomical and physiological meaning of their appearance. As a result of this it is possible to group them into significant classes which may give coherence to the disease picture and an orderly conception of the sequence of symptoms. For purposes of such analysis, the purest and least confused form of the disease is the early acute stage unmodified by the pathological influences which develop with recurrent attacks. The problem involved in the chronic form of the disease is largely one of differentiation from other abdominal disturbances in which there are few or no pathognomic signs and in which judgment in sifting the material is of major importance.

If the pathological process in appendicitis is considered, it will be granted that even mild attacks involve definite though possibly slight inflammation of the mucosa which often progresses to serious disturbances. Even the slightest degrees of inflammation involve the nervous mechanism of the appendix which, like that in other parts of the intestine, consists essentially of the two intrinsic plexuses with their communications. Impulses started here travel by way of the mesenteric nerves to the superior mesenteric and the celiac plexuses. Here they probably diffuse and travel along the distribution of other branches of the plexuses or by way of the rami communicantes (1) to the muscular and cutaneous branches of the spinal nerves, and (2) to the spinal and cerebral nerve centers. This forms the neurological basis of the earliest and most important group of symptoms in acute appendicitis. The symptoms of this group are (1) pain, (2) muscle guard or rigidity, (3) tenderness on pressure, (4) cutaneous hyperesthesia. It should be distinctly recognized that these are all the result of irritation of the intrinsic nervous mechanism of the appendix and as such give us the earliest manifestations of an inflammation going on in the appendix. And the milder the irritation or attack the more important are these referred manifestations in the discovery and recognition of the true character of the illness. Closely associated with these major symptoms are central reflexes involving other organs, which will be considered as a second group.

The symptoms which may be ascribed to the products of the inflammation itself are those that may be designated as toxic and that produce generalized or constitutional symptoms. These are (1) fever, (2) acceleration of the pulse, (3) leukocytosis. It is perhaps because the degree of such toxemia must be very variable, depending on the degree and extent of involvement and the virulence of the bacteria concerned, that the symptoms included in this group are variable in their appearance and their prominence and are therefore neither as con-

\* Read in the Symposium on Appendicitis at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



sistent nor as reliable as the symptoms of the first group.

In a last group the symptoms, which should perhaps more properly be called signs, are the results of the progressive advancement of the inflammatory process as it involves surrounding structures and organs. These are (1) inflammatory tumor mass, (2) abscess, (3) peritonitis, (4) symptoms arising from other organs, both contiguous and remote, which are drawn into the inflammatory mass or are invaded by infective metastases.

The first and second groups represent symptoms which can all be explained in a measure by the irritation arising from the inflammatory process of the nervous mechanism of the appendix. To repeat, this irritation provokes referred manifestations by way of the superior mesenteric plexus, the celiac plexus, branches of the right vagus nerve, and by way of the rami communicantes and the right 11th and 12th thoracic spinal segment areas to the distribution of the right 11th and 12th thoracic nerves.

The earliest and most important of these referred manifestations is pain. Its first distribution is diffuse and lies in the epigastrium and the umbilical region. It may be slight or very severe but soon localizes in the right iliac fossa. While it is frequently paroxysmal and at first colicky, it becomes less severe and more continuous as it localizes. This pain is often accentuated by gas in the cecum or colon and by movement. Often movement of the right psoas muscle intensifies the pain so that the right thigh is kept flexed and in one position. While the right iliac fossa is the area of the most continuous pain, pain may be felt in other areas as well, depending on the position of the appendix. Thus, a retrocecal position may provoke pain in the right flank or right lumbar region, a pelvic position may cause pain low in the abdomen, in the testis, or pain referred to the pelvic organs.

When, with the advancing inflammatory process, the neighboring parietal peritoneum becomes involved, secondary localization of pain occurs. Pains similar to those due to variations in location of the appendix then develop but are more likely to persist because of the adhesions of the inflamed peritoneal coat of the appendix to various organs or to the omentum. The traction on the mesentery of the appendix and on other portions of the mesentery may then play a part. The most important of these variations in the position of the appendix and the consequent variation in the area of the pain, is the right lumbar or right flank pain dependent on a retrocecal appendix.

In a mild attack the pain usually subsides in 24 or 48 hours. Persistence of pain suggests an advancing inflammation and involvement of

surrounding structures. On the other hand, *sudden* cessation of pain presages gangrene of the wall of the appendix or perforation, to be followed by return of pain.

Accompanying the onset of pain, also as one of the earliest symptoms, is muscle guard or rigidity. This is usually co-extensive with the distribution of the pain and becomes localized in the right iliac fossa with the pain. It is often more distinctly localized than the pain, but usually involves the whole of the right lower quadrant. It is a second form of referred appendiceal irritation, the path of irritation passing to the 11th and 12th thoracic segments and thence over the corresponding spinal nerve distribution. It likewise varies with variations in the areas of pain. With the extension of the inflammation to the parietal peritoneum it may become greatly emphasized over the corresponding area. Like the pain of onset, it may vary greatly in degree, but is together with pain the most reliable sign of appendicitis.

Forming the third of the earliest and most reliable signs of appendiceal inflammation is tenderness on pressure. It usually corresponds to a point midway between the umbilicus and the right anterior superior iliac spine (McBurney's point) and marks the site of the inflamed appendix or the mass of inflammatory tissue about it. It may vary, however, a little above or below this point and may be greatly accentuated by contraction of the right psoas muscle. Furthermore, its area of distribution varies quite definitely with variations in the location of the appendix; and here too as with pain and muscle guard tenderness in the flank or the lumbar region localizes a retrocecal appendix. Likewise, adhesion of the inflamed appendix to various localities of the parietal peritoneum and to various organs very distinctly influences the location of the tenderness.

Associated with the first two preceding manifestations is the cutaneous hyperalgesia which is present in most first or early attacks but which may be lost after repeated inflammatory attacks. Its distribution is wider than the first two symptoms, extending over the area of the right 11th and 12th thoracic segmental areas, from the midline below the umbilicus around the right side to the lumbar spine.

The foregoing group of four symptoms form the earliest and most reliable evidence of appendiceal inflammation. The second group is closely related physiologically to the first in that it is dependent on irritation of the innervation of the appendix and consists of reflex disturbances of abdominal organs. The commonest of these disturbances are nausea and vomiting which frequently accompany the onset of pain. They may be absent in mild cases but are almost as common as the initial pain.

In severe or extensive appendiceal involvement they may become very formidable. As a reflex result of the pain constipation is usual although the appendiceal irritation in relatively rare instances may provoke a diarrhea.

The symptoms in the other group are much more variable and inconstant and must be judged with care so that not too much importance is placed upon them, especially when they give negative results. They consist of constitutional (toxic?) reactions to the inflammatory process and include fever, changes in pulse rate and leukocytosis. In the ordinary early case a fever up to 100 F. may be present but is frequently absent. When surrounding structures become involved in the appendiceal inflammation and especially when pus appears at any stage of the process the febrile reaction is usually pronounced and may reach 103 F. or more. A high fever which persists from the onset suggests extensive involvement. On the other hand, a normal temperature should be disregarded in the presence of other significant signs. The variations in the pulse rate are to be judged in much the same way, although it is usually a safer guide than the temperature. The ordinary case provokes a pulse rate of 90 to 100, sometimes more, but as with fever a normal rate should not weigh against other positive evidence. An elevated pulse rate in the presence of normal temperature should be given due weight. A neutrophil leukocytosis suffers the same variations as the temperature and the pulse rate and should be judged with the same reservations. As a positive sign it has great corroborative value but counts of 10,000 or less should be regarded as negative. With such counts a reliable differential count showing a definite neutrophil increase, say of 80 per cent or more, may constitute admissible evidence. As a group, great caution should be exercised in judging these three findings; if negative they should not be accorded a determining influence in the face of other consistent signs.

The fourth group is made up of what are essentially the remote results of appendiceal inflammation. Broadly, they include palpable inflammatory masses, circumscribed intra-peritoneal abscesses, metastatic abscesses and general peritonitis. At the present time they are found mainly as the result of fulminant cases that survive, cases that have not come under observation until late in the disease, or that have evaded medical care entirely. They represent the type of result that is historically important because they were the end-results before adequate surgical intervention was possible. At present it should be only in the minority of cases that tumor or abscess is demonstrable. Often the rigidity which accompanies

the development of the case masks or makes entirely impossible the recognition of such mass.

#### SUMMARY

An attempt has been made in this paper to point out that the significant and most helpful signs of appendicitis are the result of three kinds of irritation which the disease sets up: (1) The referred and reflex results of irritation of the intrinsic nervous mechanism of the appendix; (2) the toxic manifestations; (3) the evidence of secondary inflammatory invasion of contiguous and remote structures.

The manifestations which make up the symptoms under these three classes are: (1) pain, muscle guard, tenderness and cutaneous hyperalgesia, with a frequently accompanying nausea or vomiting, and constipation, rarely diarrhea; (2) of secondary importance are fever, changes in pulse rate, and leukocytosis, which are to be utilized with care; (3) relatively remote intra-abdominal inflammatory masses which play no direct part in the determining symptoms.

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### POSTOPERATIVE COMPLICATIONS OF APPENDICITIS\*

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For the purpose of discussing the post-operative complications of appendicitis I have made an analysis of the acute cases which have been operated upon by me at the University Hospital during the period from January, 1920, to January, 1931, consisting of 349 cases. All appendices removed were examined by our pathologist. His diagnoses follow:

Diagnosis	Cases	Per Cent
Acute catarrhal	17	4.89
Suppurative	259	74.21
Gangrenous	68	19.48
Appendix not removed	5	1.42

During convalescence two of the appendices not removed at operation sloughed and were discharged from wound; one was removed at a later operation; the other two, one in a woman aged 77 the other in a man aged 75, have not been removed. In this list there were seventeen cases of primary abscess, a percentage of 4.8. In thirty-six instances, or 10.3 per cent, the appendix was found to be perforated. The earliest perforation was in twelve hours; the great majority seem to have perforated somewhere between thirty-six and sixty hours depending upon the treatment before operation.

\* Read in the Symposium on Appendicitis at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



Drainage was done in 47 cases, or 13.7 per cent. These comprised all the cases of perforation, all the primary abscess cases and six cases that although the appendix was removed intact the gross pathology of the bowel and peritoneum or the oozing of blood suggested drainage as the safest procedure. From 2 to 7 small cigaret drains were placed in regions where it seemed that trouble might be expected. There has been no rule as to when drains were to be removed; each case was decided upon its merits according to the patient's local and general manifestations together with a daily leukocyte and differential count. The white blood count averaged 16,000, neutrophils 82.6 per cent. Hospital stay averaged 12.6 days. There were three deaths giving a mortality of 0.86 per cent.

#### COMPLICATIONS

Two hundred seventy-six cases, 79.08 per cent, were uncomplicated and had an uneventful convalescence while seventy-three cases, 20.92 per cent, developed or continued some major or minor complication. There were eighty-seven complications as follows: Progressive peritonitis, 31; diffuse peritonitis, 16; pneumonia, 6; secondary abscess, 6; subphrenic infection, 4; thrombophlebitis, legs, 4; parotitis, 2; empyema and rib resection, 1; pleurisy with effusion, 1; secondary wound infection, 15.

#### PERITONITIS

*Classification.*—I am somewhat in doubt as to how to classify peritonitis, for almost without exception there seems to be some degree of peritonitis with every case of suppurative and gangrenous appendicitis. This confusion seems evident in the minds of the different authors whose reports on acute appendicitis I have studied. I have found the occurrence of diffuse peritonitis varying in the different reports from 0.3 per cent up to 11.4 per cent of the total number of acute appendix operations. I cannot believe there is that amount of variation in pathology as seen by different operators, I think the variation is due rather to the difference in each man's classification of peritonitis.

Leaving out the purely local inflammation of the peritoneum and the surrounding bowel which is so constantly present, I have classified as progressive peritonitis those cases in which there is increasing distention, elevated pulse and increasing abdominal tenderness, with more or less vomiting for a period of about 48 hours after operation but during which time the patient does not impress one as being seriously ill. There were 31 such cases, 8.8 per cent of the total number. All such cases were treated postoperatively as potential cases of

diffuse peritonitis; indeed, they are borderline cases and can easily progress and become diffuse, or recede and become a localized process.

The diffuse cases were 16 in number, 4.6 per cent of the total cases. These were either generalized at time of operation or became so postoperatively. Such cases were marked by such symptoms as are well known to all and are simply the signs of a general peritoneal involvement to which are added the signs of a general severe toxemia. Two of the total of three deaths in this series were due to diffuse peritonitis. In both cases, however, pneumonia was present. One case was that of a girl, aged 18, who died 7 days after operation, the other case was that of a boy, aged 5, who lived 18 hours after operation.

*Treatment.*—As soon as the diagnosis of appendicitis with progressive and diffuse peritonitis is made, if the patient's condition permits, the appendix is removed under gas and ether anesthesia or local infiltration. Through an appropriate incision the base of the appendix is sought with the index finger and the condition and position ascertained. No gauze packing is used except when it cannot be avoided. When retraction is necessary it is made by the assistant's finger or a flat retractor. At no time is force allowed. In a retrocecal appendix the removal is often done in a retrograde manner. This can usually be accomplished by sharp dissection, clamping and tying the meso-appendix rather than attempting to bring up a tight appendix by blindly separating it with the finger with the resulting trauma and oozing. No exploration is done other than to inspect the terminal ileum and its blood supply for thromboses. Drains are placed where indicated. After operation the patient is put to bed lying on the right side or on the abdomen with the head of bed elevated. The patient is not disturbed for bathing or change of dressings until there is a definite sign of improvement. The administration of fluids is commenced at once by means of hypodermoclysis, venous infusion, or proctoclysis. When vomiting persists the stomach is frequently lavaged. The mouth is kept moist with lemon juice and glycerin mixture on an applicator. Plenty of morphine is given. No tight binders or tight strappings with adhesive are allowed on the abdomen because I believe these patients are far more comfortable when plenty of room is allowed for distention and when respiration is made as free as possible.

The improvement or the reverse in these patients is judged by the amount of local abdominal change, by the pulse, by the variations in the blood counts, with especial attention to the

change in the relation of the neutrophils to the total white blood cells.

*Ileus.*—There was one case of ileus in this series which required operative relief. The obstruction became manifest on the sixty-first postoperative day in a young man of 19 who required drainage for a localized abscess when the appendix had not been removed at operation. This patient had a stormy time from the first; he had secondary abscesses which had to be drained on two occasions, thrombophlebitis of the left leg, pleurisy with an effusion which had to be aspirated, and influenza. At the time of operation for ileus, the appendix and terminal ileum were seen bound to the anterior abdominal wall by dense adhesions. The appendix was removed at this operation and the obstruction to the bowel seemed to be relieved. However, symptoms of obstruction began again in five days when high enterostomy was done through the upper left rectus muscle. This relieved the vomiting but the patient died the next day.

Although not included in this series of cases from the University Hospital I have had two other cases of mechanical obstruction following operation for perforated appendices with diffuse peritonitis at time of operation. In both cases the appendix was removed at the original operation. In the first case, that of a girl aged 16, symptoms of obstruction began on the twenty-first day. On the twenty-second day an operation was done under local anesthesia and the obstruction found to be fresh adhesions on the terminal ileum. These were freed, a cecostomy was done and the patient went on to recovery without further mishap.

The second case was that of a lady of 48. The obstruction occurred on the fifth postoperative day when the abdomen was reopened immediately. The obstruction was found to be an angulation in the terminal ileum about ten inches from the ileocecal junction. Some fresh adhesions were found and divided thus restoring the patency of the bowel. This operation was done under local anesthesia supplemented by gas and oxygen. The recovery was uneventful from this time.

The history of these three cases of postoperative obstruction is similar to others I have seen following other operations, viz., colicky pain at the site of obstruction increasing in severity; increasing distention; decreasing passage of gas by rectum following enemas. All cases vomited to some extent and increased in frequency but only in the first case which was fatal was there persistent vomiting.

The treatment, of course, is early recognition and early operation, preferably with spinal

anesthesia. The time element I believe to be the difference between death and recovery. In delayed cases where there is great distention and a large quantity of fluid in the intestines above the point of obstruction, I believe an enterostomy should be performed at time that relief of the obstruction is accomplished in order to drain the bowel immediately of toxic material.

*Secondary Abscess.*—There were six cases of secondary abscess, all of them in cases which had been drained. They were manifested by delay in convalescence, by gradual elevation of temperature and pulse; by increase in or continuously high blood count. All manifested local changes such as fullness in the region of the abscess, usually with some local distention. Four of these secondary abscesses occurred in the ileocecal region while two were found in the pelvis by rectal examination. Two cases were explored for suspected abscess of the right lumbar gutter. No pus was found but the region was drained and the symptoms promptly cleared up.

I can see no need for haste in exploration for local collections of pus in these cases, for perhaps just as many cases as have been opened surgically have spontaneously evacuated themselves into the original abscess cavity and been taken care of by the original drainage.

*Subphrenic Infection.*—I have made this diagnosis from the clinical picture in four cases. I shall cite one case.

On the ninth day following operation for acute suppurative appendicitis during which time the course had been uneventful, patient's temperature rose to 102°, pulse 116, respiration 18, and pain was complained of under the lower ribs on right side. Chest examination and roentgen ray revealed no signs except restricted breathing at the right base. Blood count advanced from 9000-79 up to 20,000-83. Temperatures for two days ran between 102 and 100, pain gradually receding. Blood count on second day was 10,000-73. Patient was all right for five days when the same thing occurred. Lungs normal. Recovered in three days. Kept in hospital for six more days when she was discharged. After being home two days a similar happening took place. She was readmitted, treated with ice-bags and recovered in three days. Kept in hospital ten days when she was discharged and had no recurrence.

Three other cases have behaved in a somewhat similar manner and for want of a better explanation I have listed them as subphrenic infections. In none of these cases have I been compelled to open or even to aspirate the subphrenic space. I find in different reports on



the complications of appendicitis that other operators have had similar experiences.

*Thrombophlebitis of Legs.*—Three patients have had this complication. In one the right internal saphenous vein was affected, in one the left internal saphenous, in the third case the veins of both legs were affected, the lesion occurring in the left leg on the twenty-third post-operative day while the right leg became affected on the twenty-sixth day. In one case the thrombus occurred on the twenty-second postoperative day while in the third case the symptoms appeared on the twelfth day. All began with severe pain in the leg followed by increased swelling and edema. The condition subsided in each case with the elevation of leg, heat and keeping the leg quiet for three weeks. All appeared after ruptured appendices, general peritonitis being present in one case, primary abscess in the other two.

Pneumonia occurred in six cases, pleurisy with effusion in one case, the quantity of fluid in the pleura requiring aspiration. Empyema of chest requiring rib resection occurred in another case.

There is nothing in these complications peculiar to appendicitis, for lung complications as we all know are apt to occur following any suppurative lesion of the peritoneal cavity.

Parotitis occurred in two cases. In each instance it was unilateral and occurred on the left side. It was not severe in either case.

*Secondary Wound Infection.*—There were fifteen such cases, or 5 per cent of the wounds that were closed without drainage. I have listed here only those in which frank pus was found requiring the superficial wound to be reopened and delaying wound healing. Cases in which there were small collections of serum have not been listed.

I should not like to end a report on the complications of appendicitis without mentioning pylephlebitis and liver abscess. Although neither of these has occurred in this series and while as a matter of fact I have never had to deal with either one I am ever mindful of the fact that both are apt to be present in any case of appendicitis. All my patients are carefully questioned as to preoperative chill. Four have given such history. Two patients had severe chills immediately following operation with temperature going above 104 F. No cause for the chill was found in either case and no harm resulted.

With the occurrence of thrombosis in mind, however, I always ligate the meso-appendix as close to the base as possible, leaving a large part of it attached to the appendix. From the frequent pathological reports of infected throm-

boses in the vessels of the meso-appendix I am convinced this practice is well worth while.

In addition an inspection is made of the terminal ileum and its vessels in every case where it is possible to do so for the presence of any pathology of the vessels. It would seem to me that the best way to reduce the high mortality from pylephlebitis would be to prevent its occurrence.

#### CONCLUSIONS

In conclusion I wish to say that I realize that this is a small number of cases. The mortality, 0.86 per cent, and the number of complications are low. There are several reasons for this low mortality and the small number of complications, viz.:

1. We are dealing with a highly intelligent and educated class of patients, both in the State University and town circles.

2. Early in their freshman year students receive a thorough course in preventive medicine in which early medical attention to any ailment is stressed. When a student reports to the hospital, if any doubt exists in the dispensary physician's mind as to diagnosis the patient is hospitalized for observation, consultation, blood and urine examination. I venture to say that for every ten patients who come in for observation for appendicitis nine are not operated on. As a result, most of the operative cases are found early in the attack when the hazards both as to mortality and complications are little if any greater than the interval operation.

3. In Boone County we have a real county medical society attended not only by the city men but by the country physicians as well. Here an education program is held once a month. Appendicitis is often discussed and the following points have been well emphasized: (1) Temperature must not be relied upon as a guide to tell us what is happening in an appendix. (2) Avoidance of cathartics in cases with abdominal pain. (3) An early total blood count with differential, and especial stress placed on the ratio of neutrophils to total leukocytes. (4) A rise in leukocytes and neutrophils does not mean appendicitis, but it *does* mean *something* and the cause should be found out. (5) If in doubt, get the patient into a hospital and have surgical consultation before morphine is given.

Guitar Building.

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## CAUSES OF HIGH MORTALITY IN APPENDICITIS\*

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The death rate of appendicitis is a problem that demands the serious consideration of the medical profession. That the mortality is on the increase at a time when hospitalization and medical and surgical skill are so far advanced is an unusual situation. The truth of this statement is borne out by consulting vital statistics. The Missouri State Board of Health in its annual report of 1924 listed the total number of deaths from appendicitis at 531. In 1925, 548; 1926, 575; 1927, 606; 1928, 541; 1929, 577. A gradual increase is shown each year since 1924. To this may be added an indefinite number where the cause of death is given as peritonitis knowing as we do that the appendix is the most frequent cause of this condition. As physicians we see the tragedy of unnecessary death stalking behind these figures because we realize that almost one hundred per cent of the cases get well if seen in time and a proper diagnosis, operation, and after-care follow. The condition is not limited to this country. It exists in England. Wilkie in the *British Medical Journal* of February 14, 1931, says, "The mortality from appendicitis remains as high as it was twenty years ago because, while facilities for treatment have improved, diagnosis in the fatal type of case has not." He also points out that there is a lack of skilled preoperative, operative, and post-operative treatment. We must accept these reports as being conservatively correct and, assuming this, it behooves us as a profession to face this problem squarely and place the blame where it properly belongs. It is appalling to think what the death rate from appendicitis amounts to throughout the United States when in one state alone it amounts to nearly 700 a year. The number can be conservatively esti-

mated at 35,000 per year. The annual death rate from appendicitis equals all the deaths from salpingitis, pelvic abscess, surgical diseases of the pancreas, spleen, thyroid, gallstones and ectopic pregnancy. Eighty per cent of the deaths from appendicitis occurs before the fiftieth year while only one-fifth of the deaths from cancer occur before the age of 50. Before the age of 60 there are about 4,000 more deaths annually from appendicitis than there are from diabetes. Think of what these figures mean from an economic standpoint. The vast majority of those who succumb to appendicitis are lost during their productive years. Those who die from cancer or diabetes have in most instances passed the stage of usefulness. I invite your attention to the following data:

In Missouri during the year 1928 the deaths from appendicitis according to ages, were:

At the age of 4 years.....	3
From 5 to 9 years.....	39
From 10 to 19 years.....	118
From 20 to 29 years.....	84
From 30 to 39 years.....	91
From 40 to 49 years.....	87
From 50 to 59 years.....	58
From 60 to 69 years.....	38
From 70 to 79 years.....	14
From 80 to 89 years.....	5

The highest death rate is between 10 and 18 with a total of 118, but below 50 there was a total of 432 deaths compared with 115 above 50, showing that appendicitis takes its greatest toll among those who are in the most productive years of their lives.

When we come to consider the operative mortality rate we are again faced with an unpleasant surprise. I believe I am being ultra-conservative when I estimate the mortality rate as being more than 10 per cent in this country. Naturally, this depends somewhat upon localities, hospitalization, competent medical care, etc. In some localities the mortality runs as high as 25 per cent. Again, let me offer the following statistical information:

Carr and Deacon<sup>1</sup> writing on "Appendicitis in Michigan" found that "in some counties no deaths occurred. In others it varies from 1 per cent and over. In only 8 counties was it less than 5 per cent; in 11 it was between 5 and 10 per cent; in 16, between 10 and 14 per cent; in 17, between 14 and 18 per cent, and in 10, between 18 and 21 per cent. In 10 it was 21 per cent or more." We must concede that this is entirely too high. Let us now search for the reason of this high mortality. I am forced to the conclusion that when a death occurs from appendicitis it means that some one has erred. These errors, it seems to me, might well be

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put under one of three definite classifications, as follows:

1. The patient treats himself, or too often his children as the case may be, by home remedies and delays calling a physician until fatal consequences ensue.

2. Failure on the part of the physician to recognize the condition and recommend early operation.

3. Improper preoperative, operative, and postoperative care.

Discounting the few cases where operation is refused by the patient, I am convinced that in these three propositions lie the causes of our high mortality. Let us consider the first.

Too often, Johnny, with a pain in his stomach, is given a dose of castor oil and put to bed with a hot water bottle on his abdomen until he gets "good action" from the oil, and then if he isn't better the doctor is called—many times when it is too late. People too often accept "bellyache" as of little consequence and do not respect or appreciate its dangers. Every physician can recall cases where he has been called to see a child at the point of death from peritonitis, to be told by the parents that they did not realize he was as sick as he is because he had been resting much easier the last few days. I recall vividly being summoned one day to a small hospital in a neighboring town to operate on a little girl for appendicitis. When I arrived I found her desperately ill with her little abdomen tremendously distended, pulse almost imperceptible, tongue dry, and the typical peritoneal facies. I found that she had been sick about a week and that they had called a doctor only a few hours before. I reprimanded the father rather severely for his negligence in calling a physician, for which I was afterwards sorry. I told him frankly that the little girl could not get well and that it was due to the lack of proper medical attention earlier. With tears streaming down his face he confessed to me that it was ignorance on his part; that he did not suspect it being appendicitis but thought it was only a bad case of colic. A few months afterwards this same physician received a call from this man to come hurriedly to see another of his children he was afraid had appendicitis. In this instance it happened not to be. This man will not permit another of his children to die for the want of early medical attention in appendicitis, but he paid a fabulous price for his knowledge of the disease.

Now, why do people procrastinate when faced by such crises? There can be but one answer. It is due to their ignorance of the danger. I cite these facts to support a posi-

tion I have long held, i. e., that it is the duty of the medical profession to instruct the laity about the danger of death that stalks in the wake of this treacherous disease. When we have accomplished this we will have removed one of the chief reasons for the high death rate from appendicitis. We spend much time and money instructing people about cancer, which is altogether commendable, but why not also about appendicitis, which destroys our children and young men and women in the prime of their lives.

My observation is that the mortality rate is much higher in patients brought from rural districts—but I want to say, in defense of the country doctor, I am sure that many times he faces a difficult task in convincing his patient of the seriousness of his condition and the necessity for an early operation. These are the people that should be reached with an educational program. People in the cities generally speaking seem to better understand the danger in procrastination and therefore consent more readily to operation.

I would like to see the medical profession put on an educational program that would reach every rural school, high school, college, and university in the state. Inform the people about the high death rate, the useless sacrifice due to delay and misunderstanding. Let them know what they are to do and what they are not to do. I can assure you they will cooperate when they fully understand the danger and what is expected of them.

Now as to the second cause, the failure of the physician to recognize the condition and recommend early operation. As physicians we cannot escape our share of the responsibility. We should meet the issue squarely, not in a way of belittling any one for his ignorance or shortcomings, but in order that we may face some proved basic errors of which many of us are still guilty. A recent review of statistics from several large hospital centers reveals the distressing truth that 90 per cent of children operated upon for appendicitis were treated by the parent or the physician, before a correct diagnosis was made, for such conditions as gastritis, enteritis, intestinal influenza, colic, and indigestion.<sup>2</sup> Too often the physician has been responsible for giving castor oil or a hypodermic to relieve the pain without making a detailed examination and taking a careful history, both of which are essential to an early diagnosis. The importance of an early diagnosis should be realized by every practicing physician. He cannot expect to give his patient the best treatment and obtain the best results without early diagnosis. There is seldom an excuse for any doctor to permit a patient

suffering from appendicitis to go on to the point of rupture with all the complications that ensue, when he has been in charge of the case from the beginning. He should be able almost without exception to make a diagnosis of appendicitis and have the patient operated upon before the appendix ruptures. He should not permit the patient or the patient's relatives to dictate the course he is to follow where such dangerous consequences may result.

There is no necessity for me to go into the classical symptoms of acute appendicitis. It is well enough always to keep them in mind, but I consider it unwise for a doctor to be guided entirely by the so-called classical symptoms. I see so many cases that fall far short of the classical picture that I have long since ceased to be guided by it in a case of acute abdominal pain. The appendix should always be thought of first in any case of severe colic. The logic of this I take to be obvious when we consider that the appendix is the greatest factor of disturbance inside the abdomen.

There is a tendency toward hasty and snap judgment with a ready response to the patient's plea for immediate relief by giving morphine thereby masking all symptoms and delaying a diagnosis, too often for many hours. I would suggest that in every case of acute abdominal pain a careful history as well as a careful physical examination be made, and in this examination should be included the necessary laboratory routine, such as blood count including the differential, and urine examination. If the physician in charge is not equipped to do this properly then it is his duty to get the patient to the nearest hospital center where the necessary examination can be carried out. I think it is a grave error to give a hypodermic of morphine before a diagnosis or at least a tentative diagnosis has been made. It should be unnecessary, addressing a group of physicians, to warn against the early use of castor oil and other cathartics but the truth is that many still violate this axiom.

The third reason, namely, preoperative, operative, and postoperative care, presents material for a lengthy discussion which neither time nor space permits. The truth is, however, that herein we find a reason for much of the high mortality. This becomes more obvious when we remember that the mortality of some of our best surgeons does not exceed 2 or 3 per cent. An editorial in the *American Journal of Surgery*, February, 1930, commenting upon the article previously referred to in this paper<sup>1</sup> states that the "average mortality in that state is 15 per cent. A difference of 1000 per cent between the average and the good. In

other words, there is a sacrifice of more than 13 human lives in each 100 suffering from appendicitis, and an appendectomy is a simple operation!" The inference is that there are too many men doing surgery who look upon appendicitis as a simple thing, whereas in truth in grave cases there is no surgical disease that requires greater nicety of judgment and skill. It is a grave error to accept a patient for immediate emergency operation who has just entered the hospital after a long period of vomiting and dehydration, with abdomen distended, tongue and lips dry, and the surgeon's mind centered only on one thing—the removal of the appendix. Countless numbers of cases are sacrificed in this way when, instead, their body fluids should be replenished and in many instances their stomachs lavaged; in short, they should receive a period of intelligent preoperative care and treatment before operation is undertaken. I do not mean by this that I am not in favor of early operation but I do want to impress upon you the importance of sane surgical judgment in selecting the proper time to operate. I do not believe there is any one skilled in surgical judgment and surgical technic who has a mortality rate of 15 per cent. Therefore, it seems evident that the type of preoperative, operative and postoperative care plays no small part in our high mortality rate. Analysis of 65 cases of acute appendicitis of my own from September 14, 1929, to April 1, 1931, brought some interesting things to light. Twenty-five, or 38 per cent, were ruptured. Twenty-four, or 37 2/3 per cent, had castor oil, salts, or pills from one to several times, administered either by physicians or parents. In the first 36 cases 19 per cent had either castor oil or salts by order of the physician and in one instance the patient vomited the castor oil four times before retaining it. If vomiting had held out he might have escaped a ruptured appendix.

#### SUMMARY

1. The death rate from appendicitis in Missouri has shown a gradual increase since 1924.
2. The mortality rate is from 1.5 to 21 per cent varying with the type of surgical care and higher in patients from rural communities.
3. Much of the high mortality is found in neglected cases treated by home remedies before a physician is called. An educational program will go far in correcting this.

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## WHEN NOT TO OPERATE ON A CASE OF ACUTE APPENDICITIS\*

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The paradoxical answer to such a question is that a surgeon acting in a scientific manner will invariably apply immediate appendectomy upon a patient suffering from an attack of acute appendicitis when the disease is recognized as localized in the substance of the appendix. Murphy's aphoristic advice, "Operate as soon as the diagnosis of appendicitis is made," is the correct way to treat acute appendicitis. There can be no logical deviation from the acceptance of this advice when the disease is located in the confines of the appendix, and to the logic of such a statement I hope there is not a dissenting opinion in this assembly. Appendicitis in acute manifestation is always a surgical disease which requires acumen in its diagnosis, but once positively diagnosed surgical removal of the infected unruptured organ is demanded and merits the haste the nature of the lesion commands. The reward of early diagnosis is early appendectomy with about 2 to 3 per cent mortality in the record of those fortunate surgeons who possess the ability to accumulate their appendiceal problems in such ideal states.

Too often the force of circumstances brings examples of acute appendicitis in patients who do not present such ideal pathological status. The disease in such patients has unhappily progressed to the more serious experience of acute peritonitis through failure to recognize the nature of the condition. This condition has been produced by the always to be expected perforation of an acutely inflamed appendix. The complication of acute peritonitis is recognized as serious in proportion to the relationship of several participating factors, namely: The identity of the infecting organism permitted to escape from the appendiceal perforation; the number of such organisms so introduced, and the limitations offered toward such invasion by the natural immunity forces of the host's peritoneal mechanism. If great numbers of any pyogenic organisms escape, a serious degree of peritonitis is invariably invoked. Whether the patient escapes the penalty of this misfortune depends on many factors, not the least of which is the manner in which his surgeon appreciates the problem involved and accordingly acts.

What can surgeons do to save the life of a patient who presents a high degree of peritonitis as the result of a perforated appendix?

That something can be done is accepted by patient and surgeon. The most effective manner through which this desired end can be accomplished is still a matter of some dispute.

There are two schools of surgeons who have advised us how to treat such cases. Disciples of one school act and wait—the other side waits and acts. One group operates on all patients with perforative appendicitis-peritonitis as soon after the diagnosis of appendicitis is made as it is humanly possible to do. The surgeons in the other group spend their effort in finding reasons for not operating upon such patients. The latter group becomes watchful waiters, generals who deploy their meager measures in little flurries against the invading attack of the organisms as they spread and effect a widening peritonitis. Such surgeons introduce simply applied measures to meet variations in the host's physiology. They attempt to aid and abet the host's natural forces against the ravages of his bacterial enemy.

Which group thus described is correct is never settled by this or any discussion. I speak my personal opinion when I say that each may be partly right, both often wrong, else why the increasing death rate from acute appendicitis which has been followed by peritonitis.

No man in this room knows how to treat properly all cases of acute perforative appendicitis. There are some patients from whom you can remove the appendix in the acute perforative stage and the patient will invariably get well. Of these there are many examples. There is a group of patients less in number essentially in similar states, who if immediately operated upon will almost invariably die. It is with this group of usually fatal cases who die if operated upon that this paper is concerned. When you have lost a few of such cases you are a mental candidate for information on the method of management of the nonoperative treatment of diffuse peritonitis. You will then divide acute appendicitis as affecting patients into two groups, one a large class on whom you will immediately perform appendectomy because if so operated on they will and should recover. The other group is represented by patients in more advanced states of diffuse peritonitis whom you will be loath to subject to immediate operation of appendectomy because they will often die after operation. The cases in this second grouping will compel the attention their serious state requires. You will attempt to make a diagnosis beyond just acute appendicitis in such cases. You will eventually formulate some classification for such peritonitis cases. For sake of standardization I

\* Read in the Symposium on Appendicitis at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

have found that examples of this second grouping are exemplified by patients:

A. Having advanced diffuse peritonitis with tympanites approaching a lethal state.

B. Whose symptoms indicate they have streptococcic appendicitis.

C. Affected by other serious infections to whom an attack of appendicitis is an added complication.

D. Having a diffuse peritonitis of such a degree that I am in doubt as to the safety of any surgical procedure.

E. Having pneumococcic peritonitis.

Patients whose condition and diagnosis compel their classification in one of the above divisions are candidates in my standard for non-operative management of their resistance against the ravage of their advanced peritoneal disease. It is a serious responsibility we thus invite. One single slip in management and disaster and pitiless criticism follow. Look well before you classify a patient in one of the above groupings. Once you start a nonoperative plan of management there is no road back. If you follow a proper régime your drive will be rewarded by successful termination of diffuse peritonitis into a localized abscess in a very large percentage of the cases. What you permit the patient to accomplish by following such management is a natural cycle of events related to inflammatory states, no matter in what organ such states may be located. It is our experience that incision and drainage for inflamed peritoneal surfaces is no more rationally indicated than it is for those affecting synovial or pleural locations. You do not practice opening a knee joint for streptococcic invasion or a pleura in a high state of inflammation after influenza. To be sure, incision and drainage may help the appendicitis phase of the disease but the patient is not dying of this appendix disease—he is dying as the result of a process related to the inflammatory state affecting peritoneal structures. We recognize that incision is the indicated procedure to overcome the effect of purulent exudation, seldom however is it to be applied to inflammation of endothelial structures. It is a happy circumstance that inflammatory disease has a temporal limitation in its activity when applied to human tissue. If a host's life can be maintained for a few days when afflicted by the ravages of a pyogenic inflammation, the host will almost invariably completely recover or the inflammatory state will succeed to abscess formation in localized areas. In such events the surgeon's incision is always indicated and is life-saving.

In the light of an extended experience I fail

to see why appendiceal peritonitis warrants incision in the inflammatory state any more than pelvic peritonitis in women requires such similar endeavors. Peritonitis caused by perforated appendix requires a more rigid régime to gain a parallel result to that more readily obtained in pelvic inflammation, if we adjudge the patient is a candidate for the establishment of nonoperative management. The régime we have adopted in the plan of management is rather elaborate. The subject assigned to us precludes any discussion of its details; suffice it to say that it has proved successful in a vast majority of instances where it has been indicated and applied.

What happens to a patient being so treated? In two or three days after a patient has reached a state of inoperability the climax of clinical manifestations is usually reached. There is a gradual progression of increase in temperature, muscle tension and heightened leukocytosis. Fibrinization represents the local tissue reaction. Agglutination of the omental substance and bowel angulation are processed and are recognized as highly protective. The battle between the tissue forces of the host and the effect of bacterial toxemia represent a very subtle warfare. If properly directed the host's body defenses establish an invariable protective cytological reaction and the battle during the inflammatory stage of peritonitis is eventually won. Whether or not the end of the battle is only an armistice or complete victory is evidenced by the absence or presence of localized purulent accumulations. Operation on such pus infected patients is indicated and is vastly superior in results attained than if the same patients had been operated upon in the acute inflammatory stage.

I have applied nonoperative treatment during the progressive inflammatory stage of peritonitis on hundreds of cases and have lost three patients so treated. I have operated upon similar acute cases in times past and had 5 deaths in 22 cases. Three patients who died, died within thirty hours after I started my nonoperative régime. One died in 12 hours. I have seen so many, many examples of patients who presented symptoms of streptococcic peritonitis recover when the nonoperative régime was followed, as compared to the results when appendectomy was applied, even within the 36 hours phase of appendicitis disease, that I am led to admit to myself that the nonoperative régime is more effective in management of such patients. And why not? Does incision relieve streptococcic cellulitis in the inflammatory stage? It does not. It does, however, actually harm the patient if you incise his inflamed lesion.



Pneumococcic peritonitis derived from any source in children has on two occasions responded to the waiting policy. Later incision was followed by cure. Only one such case so treated has died, in my observation. Two cases operated upon early in attack died promptly and evidenced no benefit from drainage of their thin seropurulent filled peritoneal cavities.

I did not accept a case of measles complicated by bronchopneumonia and further complicated by perforative appendicitis, these combined attacks being on the tissue structure of a red-headed lad as representing an indication for appendectomy. The régime followed for the peritonitis phase of his diseases did not confuse the treatment of measles or of pneumonia. Later, drainage of appendiceal abscess was followed by complete recovery. I have lost two patients affected with diffuse peritonitis following perforative appendicitis whose ruptured appendices paralleled the delivery of a full term infant. For these I initiated immediate appendectomy. Operation did not save either mother in such catastrophe. I probably will not advise immediate appendectomy in the next case like this that I see. Would you?

Ochsner did not offer his interpretation and plan of treatment as the best method to follow in treating acute appendicitis. He offered it as a plan to follow when diagnosed findings indicate that appendectomy introduced at the late hour the patient was seen was likely to be followed by a greater mortality than if the surgeon did not operate at all. His contention was not that acute appendicitis should not be operated upon with appendectomy in most cases; simply that, if you managed properly, some cases that experience had shown to be classed as cases that would die if operated on, you could save a larger percentage of those who present themselves for treatment of acute perforative appendicitis.

May the number of patients who present themselves as candidates for the nonoperative method of treating appendicitis become less prominent in your practice is my plea and reason for this paper. You should diagnose a patient's condition as caused by appendicitis as early as possible and do appendectomy immediately—before such patients become candidates to this more conservative method of treatment. Leave the castor oil bottle on the closet shelf until you have fully interpreted an abdominal pain and there will be fewer instances of indication for the nonoperative management of acute perforative appendicitis, and the death rate of patients who have acute appendicitis will further fall.

Tables 1 to 5 show what happened in 141 cases treated during the last three years in one of the Kansas City hospitals:

Table 1.—*Acute Appendicitis*

Age	Number	Per Cent	Deaths
1-10	12	8.5	1
11-20	31	21.9	3
21-30	41	29.7	2
31-40	30	21.2	2
41-50	14	9.7	0
51-60	11	7.7	1
61-70	2	1.3	1

Table 2.—*Acute Appendicitis*

Symptoms	Per Cent
Pain	99.4
Nausea	86.
Emesis	85.
Muscle rigidity	93.
Tympanites	12.
Abscess	6.5
Pulse	92
Respiration	22
Temperature	100.2

Table 3.—*Acute Appendicitis*

Leukocytes	Number	Deaths	Per Cent
5-7000	5	0	
7-10000	21	0	
10-14000	33	2	6
14-20000	55	6	11
20-25000	10	1	10
25-35000	3	1	33
35-40000	1	0	
40-50000	1	0	

Table 4.—*Acute Appendicitis*

	Time	Cases	Mortality
Appendectomy	36 hr	36	1 case. Pulmonary embolus
Such cases drained		24	
Appendectomy delayed		40	6 cases
Such cases drained		27	5 da—15 Intestinal obstruction 6 da—36 Septicemia 5 da—67 Cardiac failure 4 da—21 Peritonitis 7 da—38 Peritonitis 5 da—18 Peritonitis
Not operated on		12	3
Refused operation		3	0
Tympanites		12	9

Table 5.—*Acute Appendicitis*

Result of Appendectomy Applied at Any Time			
Day of Disease	Number Operated on	Mortality	Per Cent
1	36	0	
2	12	0	
3	11	0	
4	10	1	10
5	4	3	75
6	2	1	50
7	6	1	12½
8	2	0	
9	3	0	
10	1	0	
11	0	0	
12	0	0	
13	0	0	
14	2	0	

Acute appendicitis is a dangerous disease. Arm yourself with every weapon of information to meet its progress. Even then, the record of the result in a considerable series of cases will not be perfect.

## TREATMENT OF ACUTE APPENDICITIS IN ITS TWO PHASES: BEFORE AND AFTER PERFORATION\*

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Deaths that occur from acute appendicitis and its complications continue to be of great import to the abdominal surgeon. Murat Willis states that according to vital statistics the mortality of this disease in the United States has increased 31 per cent since 1915. This increase is not attributable to any one particular cause but late diagnoses, catharsis, and time of operation still play an important role.

It is not within the scope of this paper to discuss the diagnosis of acute appendicitis. However, in order to institute proper treatment it is important, as in all other abdominal emergencies, to have an early and accurate diagnosis. As soon as this is made the question of the method of treatment must be decided. The expectant method of treatment in early cases of acute appendicitis is rapidly disappearing. A general rule may be followed that, when appendicitis is diagnosed within the first twelve hours, an operation is imperative.

In acute appendicitis two separate and distinct pathological conditions may be present, viz., (1) the chronic appendix whose walls are acutely inflamed and (2) the appendix whose lumen is obstructed. The second type is most treacherous as it is often unaccompanied by any constitutional symptoms other than severe abdominal pain. An early diagnosis is most important since 90 per cent of the deaths from acute appendicitis occur as the result of this pathological process. Although there is frequently no elevation of temperature or pulse rate in the early hours of the disease, yet the patient looks ill and is conscious that something is seriously wrong in the abdomen. At operation we find a gangrenous appendix with pus in its lumen, the amount depending on fecal material contained in the appendix at the time of obstruction. In either one of these two pathological processes the surgeon has to rely on the clinical manifestations more than on the pulse rate, the temperature or the leukocyte count. It is unwise to place too much reliance on the blood count in deciding when an operation should be performed. The leukocyte count bears no relationship to the severity of acute appendicitis and does not run parallel to the different stages of the pathological process. Early diagnosis and early operation before the

stage of perforation give the greatest hope of diminishing the death rate. Muscular rigidity alone, according to Deaver, is sufficient evidence to warrant the opening of the abdomen in an acute case.

Most patients who have appendicitis before being brought to the surgeon have already been treated by the expectant method or have entirely disregarded medical advice. After the first twelve hours the condition becomes more serious and the diagnosis more difficult, particularly if catharsis has been employed. It is at this time that surgical judgment is most important because perforation is likely to occur following catharsis. Often surgeons insist upon immediate operation in such cases of appendicitis regardless of the condition of the patient. This rule will only cause disastrous results. Each case should be studied and treated separately and individually. There are no rules to follow and the experience of the surgeon must dictate the best course to pursue as to the exact time of operation.

Should a chill occur with a diminution of pain, a fall of temperature, with the findings of a silent abdomen, all of which are indicative of gangrene of the appendix, an immediate operation is imperative. In such a case when operated on at once, regardless of the findings on examination, it is probable that the appendix will not be ruptured.

The presence of a palpable mass in the right lower quadrant following a perforated appendix safely permits an immediate operation if proper approach and technic are employed. In such cases an attempt is made to determine the position of the appendix and locate the point of greatest tenderness. This is important as pus will be found beneath this point and the incision must be made to conform to this region. The incision may be made at any place in the lower right quadrant. It should never be so low as to injure the internal inguinal ring. After the peritoneal cavity has been opened and the extent of the abscess is determined, the intestines are gently displaced to the left and retained in place by warm, moist gauze packs. The abscess mass is opened, the pus is aspirated and the abscess cavity is gently explored. If the appendix presents itself it may be ligated and removed. In such a procedure the danger of disseminating the infection throughout the peritoneal cavity should be kept constantly in mind. No attempt at invagination of the stump of the appendix should be made as this is usually impossible because of the induration of the cecum at the base of the appendix. If the appendix is neither seen nor felt, no time should be wasted in searching for it. The de-

\* Read in the Symposium on Appendicitis at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



pendant portion of the abscess cavity and the pelvis are drained, the peritoneum loosely sutured, the patient returned to bed and placed on Ochsner's method of treatment. Should the abscess mass be to the outer side of the cecum, an extraperitoneal approach to the appendix should be made, again being careful to avoid soiling the peritoneal cavity.

When a case of peritonitis becomes localized after a period of expectant treatment an operation for drainage should be performed at once. If the localization occurs in the pelvis as evidenced by diarrhea and frequency of urination, an incision is made in the fluctuating mass through the vagina or rectum for drainage purposes. By this procedure better drainage is established and a more rapid convalescence is assured. A localized mass in the suprapubic region can be satisfactorily treated by making a stab wound over the abscess and inserting drainage.

Cases of generalized peritonitis warrant operation for free drainage of the abdomen when they have failed to localize by the expectant method of treatment although they show an abatement of symptoms. Likewise, an operation is indicated for drainage of the abdomen of a patient under this treatment when there is a continuation of the vomiting or pain and when the pulse rate continues to rise. Under such circumstances the expectant method of treatment should be continued after operation.

A patient presenting marked distention of the abdomen with only slight rigidity of the abdominal muscles, a pulse rate of 110 or over, a low blood pressure, cyanosis, cold extremities, should not have an immediate surgical intervention. It is this symptom-complex that indicates a virulent generalized peritonitis and in which we expect the highest operative mortality. Possibly in experienced hands an operation in the beginning stage of the generalized peritonitis might be permissible, but it should never be undertaken when the distention of the abdomen is greater than the rigidity. It is much better in these cases to postpone operation and institute Ochsner's method of treatment. The exception to this procedure is in the very young and in the very old patients where it seems to have little or no effect upon the disease.

Every case of appendicitis must be operated upon at some time to avoid the possibility of a more disastrous subsequent attack. Hence, Ochsner's method of treatment must be considered as preparatory for operation and not as a substitute for it. As a general rule, the cases of acute appendicitis that should be

treated by Ochsner's method should be confined to those cases that arrive in the hospital, as Maurice Richardson states, "Too late for early operation and too early for late operation." The patient should not be treated by Ochsner's method in the home but should be hospitalized to insure the best nursing care. The treatment by this method consists of placing the patient in bed in the Fowler position and giving neither food nor water by mouth until all vomiting has ceased. If there is evidence of dehydration with dryness of the tongue, physiological normal saline given by hypodermoclysis or by vein is essential. The dryness of the tongue should be the index to the quantity of fluids necessary to combat the toxemia and dehydration, the amount varying from 1000 to 3000 c.c. in twenty-four hours. Glucose intravenously once or twice daily is very beneficial in the extremely toxic patients who have been ill a long period of time and have been unable to take nourishment. For the symptoms of nausea and vomiting, nothing gives more relief than the stomach tube; lavage as often as is necessary. No cathartics are permitted in any form. If there is much distention the colon tube or a low enema combined with the application of dry or moist heat to the abdomen affords relief. The greatest adjunct we possess in the treatment of peritonitis by this method is morphine in sufficiently large doses to control the pain and lower the respiratory rate. When properly used and in properly selected cases this method of treatment is unquestionably of great value in reducing the high death rate.

Influencing factors in determining the mortality of acute appendicitis are the types of operation and the technic employed. An incision should be made long enough to produce a good exposure of the appendiceal region, to avoid rough handling of the intestines and excessive retraction of the abdominal walls. In women and in other cases where the diagnosis is questionable the right rectus or Battle's incision can be employed. However, in cases of perforated acute appendicitis with generalized peritonitis these incisions are surgically impracticable and unjustifiable. There is a greater frequency of bleeding both during the operation and postoperatively. The nerves of the abdominal wall are severed at the site of the incision. The resulting scar from this incision is more tender and the incision requires a longer period of time to heal than is required for some of the other incisions more commonly employed.

Better and more efficient drainage can be secured by an incision made in the lower right

quadrant directly over the appendix or abscess mass. This may be the McBurney incision or the incision employed by Deaver in which the right lateral wall of the abdomen is closely followed. This incision affords greater ease in performance of the operation, less soiling of the peritoneal cavity and greater permanency of healing. Any additional exposure that might be desired can be obtained by enlarging the incision.

The question of drainage continues to be one of the most discussed subjects of abdominal surgery. The old dictum of Tait, "When in doubt, drain," is still the motto of most surgeons who operate within the abdomen. There can be little doubt at any time as to when drainage is indicated in acute appendicitis. The only possible error is to neglect to drain in the presence of free puruloid fluid in the peritoneal cavity accompanying the acute pathology of an unperforated appendix. The reason for this is that the fluid might contain organisms and if drainage is not established a possible abscess will result from this fluid being unabsorbed. A stained smear of this fluid at the time of operation definitely determines the course to follow. In all operative cases of peritonitis and abscess, the peritoneal cavity must be drained. The appendix should be removed if the condition of the patient permits. Its removal at operation obviates the possibility of overlooking an abscess or the formation of a new abscess at a later date.

By carefully locating the position of the appendix before operation and inspecting the pathological condition present at operation, a number of postoperative complications can be avoided. Should the appendix be found to extend upwards on the outer side of the cecum, inspection of the subdiaphragmatic and subhepatic spaces should be made and if pus is found proper drainage should be instituted below and above the liver to avoid the complications of a subphrenic or subdiaphragmatic abscess. Drainage should always be thorough and effectual and should never pass between loops of intestines but should be placed along the lateral abdominal wall.

If rubber drainage tubes are used they should be soft and only be used when they serve to drain and irrigate cavities. A great many prefer using Penrose drains either alone or with gauze. These are much more comfortable to the patient than rubber tubes and are less prone to cause pressure necrosis and later fecal fistulae.

The time for the removal of drains depends on the physical condition of the patient and the type and amount of drainage. It is much bet-

ter to leave the drains in too long than to remove them too soon. Deaver allows them to remain as long as they are not doing harm. In the puruloid exudate cases they are left in the abdomen until practically all drainage has ceased and the temperature of the patient is normal. In peritonitis they are allowed to remain for an indefinite number of days and at each daily dressing of the incision the drain is withdrawn about one inch and cut off until it has been entirely removed.

One of the most frequent causes of death from peritonitis is ileus, either mechanical or paralytic. The value of an associated jejunostomy or ileostomy is becoming more appreciated in certain types of lesions found at operation for perforated appendices with peritonitis. It is particularly indicated in cases of induration of the terminal ileum with paralysis of the gut wall caused by inflammation from a nearby abscess. Deaver prefers an ileocolostomy or ileocecostomy to jejunostomy and does not hesitate to use one of the two procedures when at operation he finds the ileum to be involved. When jejunostomy is employed the enterostomy tube should point upward when it is placed in the obstructed loop of intestine and should be retained in place by the Witzel method. The enterostomy tube should be brought out through the omentum.

The choice of anesthetic is by no means to be lightly considered. It depends on the general condition and the age of the patient. In the aged or in patients with other organic disease who might be endangered by receiving a general anesthetic, spinal anesthesia is by far the anesthetic of choice. In recent years the use of spinal anesthesia has been found to have therapeutic value in cases of paralytic ileus associated with a generalized peritonitis. In all other cases ethylene administered by a competent anesthetist is the best anesthetic. In children, however, ether should be employed except in cases in extremis where local infiltration with novocaine usually suffices. Local anesthesia is likewise satisfactory for incision and drainage of localized abscesses and for performing jejunostomies in cases of a complicating intestinal obstruction. A great many surgeons continue to use ether for their anesthetics, but in looking over the records of patients where ether has been used and death has occurred it is frequently noted that shock was one of the main contributing factors in these deaths.

The death rate of appendicitis in children is very high. This is due to the very small amount of omentum present at this age in life with a consequent lowering of the resistance of



the peritoneum. Also, most children have been given a cathartic before the diagnosis of appendicitis has been made. For these reasons, therefore, localization of abscesses in the peritoneal cavity in children is not apt to occur. If a diagnosis of acute appendicitis is made in a child under the age of five years, even in the presence of the most severe type of peritonitis, there should be a general rule that an operation should be performed immediately. The type of incision used in children is of little importance but it is essential that thorough and efficient drainage of the peritoneal cavity be obtained.

The postoperative treatment demands the same careful judgment and observation as does the operation itself. Following an operation for acute appendicitis, the patient is placed in bed with a pillow under the knees and one under the head as soon as he has awakened from the anesthetic. If there has been considerable vomiting before the operation causing dehydration, physiological normal saline should be administered by hypodermoclysis. After nausea and vomiting have ceased warm water or hot tea is permitted by mouth to quench the thirst. Ice water should not be given as it causes gas and frequently induces vomiting.

Where the appendix has ruptured and the peritoneal cavity has been drained, the patient is placed in bed in Fowler's position and is kept in this position until the symptomatology has markedly improved. Treatment is then followed by Ochsner's method, with the exception that no proctoclysis should be employed following operation because it has a tendency to increase peristalsis. Morphine is of the greatest value in the treatment of the peritonitis in that it relieves the pain and restlessness of the patient. It also keeps the respirations lowered to eighteen or twenty per minute thus retarding spread of the infection.

When no drainage of the upper intestinal tract has been made at the time of operation one is constantly confronted with the complication of postoperative vomiting. This is best met by the insertion of the Jutte tube through the nostril, or, if the gastric contents are very heavy, by the use of the stomach tube at frequent intervals. This not only makes the patient more comfortable but helps to avoid a probable acute dilatation of the stomach. The application of dry and moist heat to the abdomen, combined with the use of the colon tube, usually keeps down the distention. In addition, when one is positive that there is no mechanical obstruction, the use of eserine, strychnine and pituitrin is of value.

## CONCLUSIONS

Deaths that occur from appendicitis and its complications continue to be of great import to the abdominal surgeon.

The early cases of acute appendicitis are treated in diminishing numbers by the expectant treatment; when appendicitis is diagnosed within the first twelve hours an immediate operation is imperative.

Appendicitis after the first twelve hours becomes more serious, particularly following catharsis, and each case should be studied and treated separately and individually in deciding upon the exact time of operation.

Those cases of appendicitis presenting marked distention of the abdomen with little rigidity, with a pulse rate of 110 or over, should receive Ochsner's method of expectant treatment.

A ruptured appendix with a palpable mass can be safely operated upon if proper approach and technic are employed.

The appendix should be ligated and removed if the condition of the patient permits and if it can be removed without soiling the peritoneal cavity.

Cases of generalized peritonitis showing no amelioration of symptoms by the expectant method of treatment should have an immediate surgical procedure.

The McBurney incision, or a modification of it, is the incision of choice in ruptured appendices with peritonitis.

Drainage of the peritoneal cavity should be thorough and effectual and should be employed in all cases of abscesses and peritonitis. The drain should not be removed too soon.

Jejunostomy is indicated at operation in the presence of induration of the terminal ileum.

Children under the age of five years should have an immediate operation even in the presence of the most severe type of peritonitis.

Following operation all cases should be treated by Ochsner's method, but in no case in the presence of a generalized peritonitis should proctoclysis be employed.

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(Symposium to be continued)

## IRRITABLE COLON (SPASTIC COLON)\*

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AND

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There seems to be a general tendency among practitioners to consider all dyspeptic symptoms in the light of an organic derangement. That functional disorders of the gastro-intestinal tract may simulate organic disturbances so closely as to make the differential diagnosis extremely difficult is a point which is commonly forgotten, but it is worthy of much emphasis. The practitioner is quite familiar with the clinical manifestations of organic gastro-intestinal diseases but intra-abdominal functional disturbances are not generally understood. It is small wonder that he is perturbed by his inability to locate organic changes in his chronic dyspeptics. Again, only too frequently are all of us prone to entrust our diagnosis to a roentgenologist without considering the clinical history. The roentgenological variations which may be considered normal would clarify the situation in many instances if interpreted in the light of the history.

*Relationship Between Stomach and Colon.*—It is not generally realized that gastric function

is markedly influenced by disturbances of the colon. Nevertheless, such influence on the gastric function is shown clinically in both organic and functional affections of the large bowel. The anorexia in fact the actual repugnance for food shown by the patient with an acute exacerbation of chronic ulcerative colitis is well known. Experimentally, the association of the stomach and colon has been shown in many ways. Farrel<sup>3</sup> produced a mild colitis with mustard oil in dogs and then tested their gastric emptying time and found it to be hastened while in severe colitis the gastric emptying time was delayed. The hydrochloric secretion was depressed in both mild and severe colitis; the depression of secretion was greater in the severer affection. Kantor<sup>6</sup> found the gastric secretion reduced in patients with severe colitis without organic change. Bowen and Aaron<sup>2</sup> studied ten diabetics with diarrhea and found gastric hypoacidity. Carlson has shown that irritants applied to any portion of the gastro-intestinal tract may influence any other portion of the tract. Distress in the lower abdomen may occur from gastric stimuli or gastric lesions.

*Nomenclature.*—The functional disturbance which is of paramount interest in this paper is the irritable colon. This condition has been variously referred to in the literature as spastic colon, spastic constipation, and spastic colitis. The term colitis is objectionable because of the absence of inflammatory changes, but it may be used because of brevity. Inflammatory reactions seldom occur in the course of this condition.

*Etiology.*—Retained fecal material accompanying constipation may be attended by absorption of toxins which act by stimulating contraction in the distal half of the colon and thus producing spastic colon. The injurious use of purgatives is frequently contributory as practically all active cathartics have an irritant action on the colon. This should be remembered when they are used over long periods of time. Abusive use of enemas and colon irrigations may contribute to the occurrence of this condition. An unstable nervous system is commonly met with in the patient with irritable colon. Acute exacerbations of symptoms frequently attend nervous shock or emotional disturbances. One of the most important factors in the condition is the disturbance in the equilibrium between the sympathetic and parasympathetic nerve supply to the colon, Barker.<sup>1</sup> Colonic motility and tonus are dependent on a complex adjustment of complicated neuromuscular mechanisms.

*Symptomatology.*—Irritable colon is characterized by spasticity of the bowel and dis-

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Fig. 1. Normal colon, barium enema. Note regularity of haustrations and size of bowel.

turbances of motility. The following clinical symptoms are met with:

1. Pain: This may be of a gnawing or cramping type arising in the epigastrium and extending along the whole course of the large bowel.<sup>4</sup> At times it is centered around the cecum, transverse colon or descending bowel and may be so severe as to simulate organic disease, such as peptic ulcer, gallstone colic, renal colic, appendicitis or pelvic lesion. Frequently these cases are operated upon and no relief obtained. As a rule however there is no severe pain but a gastric distress or a feeling of discomfort in the abdomen, localized or general.

2. Constipation: This is present in the majority of cases. In an effort to relieve the constipation enemas or cathartics are injudiciously used with resulting aggravation of the abdominal distress and periods of diarrhea. All of the symptoms usually attending constipation, such as headache, nausea, etc., may be found. The comfortable sensation associated with defecation as a rule is not present.

3. Gas: Tympanites is commonly met with and so is eructation of sour substances. Belching is one of the most frequent symptoms and usually produces more discomfort than relief. It is to be remembered that very little if any gas is actually formed in the stomach. Air is swallowed while eating and especially while drinking and under normal conditions is promptly belched. Those individuals who fre-

quently belch large quantities of gas, in fact air, swallow the air immediately before it is belched.

4. Gastric Symptoms: These are prominent among the manifestations of irritable colon. Nausea is frequent as is also vomiting. Anorexia is common and in many instances quite marked and is frequently attended by disinclination to eat because of the subsequent gastric distress. A feeling of heaviness and fullness occurs often. The gastric disturbance due to food disagreement is not confined to any special types of foods. At times many different foods will cause gastric discomfort. Spices, green and coarse foods cause more annoyance than others as a rule.

5. Other Symptoms: Fatigue is present in many cases and is a result of both the impaired state of nutrition and the disturbed nervous system. Nervous instability and nervousness may accompany the condition.

*Physical Examination.*—Spastic colon may occur in either slender or robust individuals. There may be general abdominal tenderness of moderate degree in either iliac fossa. At times the tenderness may follow the course of the colon. Commonly, the iliac portion of the colon is tender and can be rolled under the fingers like a tube. Dilatation of the cecum may be noticeable and may be accompanied by tenderness. Many of the cases, however, do not show very significant findings referable to the colon unless the examiner has the colon specifically in mind and looks carefully for



Fig. 2. Spastic colon, barium enema. Note spasticity of bowel in descending and pelvic portions of colon and also of rectum. The proximal half of colon shows normal tonus.

evidence bearing on it. Proctoscopic examination is usually negative although at times piles, cryptitis, spastic sphincter and a spastic recto-sigmoid apparatus may be present. These, however, are not integral parts of spastic colon. The stool may be mushy or scybalous and variable amounts of mucus may be present.

*Roentgen Ray Diagnosis.*—Both the oral administration of the opaque meal and the rectal administration of the opaque enema are necessary for a satisfactory examination of the colon. Observations of the opaque meal are made at six, nine and twenty-four hours. The most frequent finding is a spasticity of the distal half of the colon or of just the descending and pelvic portions.<sup>7</sup> Associated with this is a hypotonicity or dilatation of the proximal half of the colon or of the cecum alone. The bowel is commonly intolerant of the enema and will require much less than the normal bowel to fill it.

*Diagnosis.*—A careful history is essential. Inquiry is made not only into the customary past illness, family history and development of the presenting symptoms, but also the details of the patient's employment, eating and sleeping habits, exercise and recreation. Worry in business and friction in the family are investigated and an evaluation of the patient's entire social problem is made. Needless to mention, a careful physical examination is done as also are the routine laboratory procedures and any special examinations which may throw light on the patient's problems. A good pelvic examination by a skilled gynecologist is helpful. A gastro-intestinal roentgenological study by one



Fig. 4. Colon, 24-hour examination. Increased tonus suggested throughout colon; constipation.

who is especially interested in this field is essential. A cystoscopic study of the genito-urinary tract with pyelograms is occasionally needed to exclude this region. From the foregoing it is seen that a detailed study of the whole individual, especially for the more serious organic conditions, is compulsory. The occurrence of spastic colon in conjunction with a definite organic intra-abdominal condition, at times creates a problem which requires great care in evaluation.

*Treatment.*—The successful treatment of irritable colon depends chiefly upon the full co-operation of the patient. That these cases are difficult to cure is well known because the individual frequently becomes discouraged and returns to his injurious habits, thus aggravating the condition.

In the acute attack when relief from pain is urgent, codeine, morphine or atropine may be used. It is at this stage that the differential diagnosis from an organic inflammatory disease offers much difficulty and operation is at times mistakenly thought necessary.

In the chronic cases of spastic colon, diet is a very important therapeutic agent. The following bland diet recommended by A. Schmidt, Einhorn, Bastedo, Chase, Brown and others is particularly helpful. The list includes meat, chicken, fish, milk, eggs, cream, curds, junket, cottage cheese, butter, well cooked cereals, vegetable purees, stewed fruits and simple desserts. Coffee, tea, condiments, tobacco and alcohol should be restricted or prohibited. If a



Fig. 3. Spastic colon, barium enema. Spasticity affecting distal half of descending and all of pelvic colon. Rectum normal tonus.





Fig. 5. Spastic colon, barium enema; same case as figure 4. Note spasticity of transverse, descending and pelvic portions of colon and rectum with slight dilatation of cecum.

change in the bacterial flora of the colon is indicated, bacillus acidophilus milk may be prescribed, two glasses two or three times daily.

Hydrotherapy is particularly useful in spastic colon. Heat to the abdomen in the form of warm moist fomentations, such as the Priessnitz pack, frequently alleviates the abdominal tenderness and colon spasticity. Massage of the abdomen is contraindicated as it frequently increases the spasticity of the bowel.

If drugs are necessary, belladonna and its derivatives are particularly efficacious. Tincture of belladonna 8 to 10 minims three times daily will usually suffice. Because of the insomnia, anxiety and introspection that exists, sedation in the form of the bromides or luminal may prove a valuable adjunct. If there is a disturbance in the calcium metabolism calcium lactate two grams three times a day with parathormone 15 units three to six times weekly may be helpful (Bockus, Bank and Williamson). If there exists a gastric hyperacidity alkalies are indicated and dilute hydrochloric acid may be used in the cases of anacidity. To allay the intestinal distention from gas, magnesium perhydrol, one gram three times a day, or the reduction of carbohydrates in the diet, may be tried. Powdered bismuth or kaolin may be used. Mineral oil and agar should be prescribed in an attempt to reduce the intestinal stasis which is so commonly an aggravating complication. Water should be used freely.

It cannot be emphasized too strongly that the habitual use of cathartics and enemas is objectionable on the ground that such abuses aggravate the condition. The use of roughage in the diet likewise defeats the purpose of the treatment and should be forbidden.

Operative intervention in cases of uncomplicated spastic colon leaves the patient in worse shape than before. When there exists organic disease the indication for surgery is obvious.

#### CONCLUSIONS

1. Gastric symptoms result from organic and functional affections of the colon.
2. Irritable colon or spastic colon is a common disorder.
3. Careful search for this condition in all chronic abdominal patients is advisable.
4. The symptomatology and roentgenological findings in irritable colon are described.

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#### DISCUSSION

DR. CARL R. FERRIS, Kansas City: I think Dr. Gilliland's paper is one of the most timely, so far as I am concerned, that we have had at this meeting. I believe every medical meeting should have some discussion of this important condition. We are living in an age which in some respects might not seem much different from the age fifty years ago, but in many respects it is considerably different. We are living in an age in which social and economic strains are considerably greater than we realize. These strains are such that the individual who is striving constantly in his work, driving from morning until evening, goes home, has social engagements to take him out until twelve, one, or two o'clock, then gets up in the morning and gets back to work—he is rushing all the time—gets up, dresses quickly, grabs a hasty breakfast, rushes to the office, does not take time to answer the call of nature, keeps that up until finally this condition arises. I am sure all this business and social strain produces a fatigue and nervousness which shows in the gastro-intestinal tract by the state of irritability which Dr. Gilliland has pointed out.

Frequently, this is encountered in the practice of the internist. Many of these cases come in with abdominal tenderness, and such tenderness to the unwary frequently suggests an organic lesion, and so with the suggestion of appendicitis many are operated upon. When they are so operated on what takes place? The first thing is, they are placed in a hospital and prepared for operation, put on a

restricted diet; this patient gets what every patient should have who has a high degree of spastic colon, he gets the physiological rest for that bowel for the period in which the doctor restricts his diet and restricts his activities. As soon as he returns to his regular diet and regular routine the same thing occurs again and the symptoms return. Physiological rest of the bowel is one of the most important things in treatment and is brought about in two ways: first by nerve sedatives which quiet the nervous condition of the patient; and, second, by the low residue diet which the doctor suggests.

In a recent article it has been pointed out that in ulcerative colitis treatment by the use of calcium gluconate by mouth with ammonium nitrate, three hours after eating, is good, supplemented by parathormone hypodermically. That in some hands has given very suggestive results. Recently I have attempted its use in cases of spastic colon with suggestive results also. I would like to ask Dr. Gilliland if he has used this method of treatment and if so what results he has had.

DR. C. E. GILLILAND, in closing: I have not worked on the relation of calcium metabolism to spastic colon, and have no information on the subject. I think it is well worth further study and investigation.

## IMPROVED METHOD FOR ROENTGEN EXAMINATION OF THE COLON\*

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The present methods of investigation and examination of the large intestine consist of stool examination, proctosigmoid and roentgen ray examination. The correlation of these procedures with the clinical picture is inadequate for making an unqualified diagnosis in a certain number of cases.

In the routine gastro-intestinal examination the film made 24 hours after the stomach examination with barium gives information concerning the position, motility and development of the colon, the condition of the cecum and appendix frequently, and sometimes the presence of defects and diverticula. The films made of the retained enema and after the enema has been expelled are of no less importance. As the barium enema is observed filling the colon, valuable information may be obtained by its behavior.<sup>1</sup> The normal colon fills slowly and the various segments are gradually distended. Any deviation from this gradual slow filling should be investigated carefully. The comparison and correlation of these observations give satisfactory information in the majority of cases. In the remaining cases some other procedure must be tried. Yoemans reports that 70 per cent of rectosigmoid cases may be properly examined by the rectosigmoid method.<sup>2</sup>

Added information may be obtained by any scientific method.

This short preliminary report is a discussion of a special roentgen ray examination of the colon which seems to give additional information. The procedure follows:

No special preparation of patient. Eight ounces of barium sulphate solution is injected into the rectal pouch by gravity method. In 5 minutes, make first film of the colon. Have patient expel part of the injected solution then make second film. Have patient expel all that is possible of the remaining injected solution and make third and last film.

Time and space do not permit a detailed description of all the experimental data accumulated in this study; only the most evident and practical points will be discussed and demonstrated. This procedure does not replace the accepted routine gastro-intestinal examination. It is a supplementary method to make the rectal pouch, sigmoid and colon more easily visible.

All other special procedures and substitutes that have been attempted offer many difficulties in interpretation. Materials used were oils, paste and powder.<sup>3</sup> Murphy drip and many other substances were placed in the rectal pouch.<sup>4</sup> Barium sulphate was incorporated in all the substances. The outline of the rectal pouch, the sigmoid and the colon can be obtained on serial films and studied quite satisfactorily. The function of the rectum can be observed which helps differentiate rectal constipation from true constipation. True constipation is a slowing of the progress of the material through the colon. Rectal constipation is the inability to empty the rectal pouch.<sup>5</sup>

If the small barium enema remains in the pouch on the first film and is completely passed out in the third film, the pouch and sigmoid are considered normal. When the barium leaves the pouch quickly and passes through the sigmoid and higher, an abnormality is present. The barium will pass along the entire length of an irritable colon. It will ascend to an obstruction and outline the distal surface of the lesion. It will outline the narrowed canal of a partial obstruction. The fluoroscopic examination of the small enema is correlated with the series of films and aids in interpretation.

Normally, the entire colon, including the sigmoid and pouch, corresponds in a general way to the habitus.<sup>3</sup> These have been divided into four general groups: (1) The sthenic habitus has a medium size pouch, sigmoid and colon; (2) the hypersthenic has a rather small colon and narrow sigmoid and pouch; (3) the hyposthenic has a markedly large colon, rather wide and elongated sigmoid and pouch; (4) the asthenic has a large pouch, long large sig-

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



moid and long wide looping colon. All degrees of variation may occur in any habitus. The sigmoid seems to be the segment that is redundant most frequently.<sup>6</sup> The colon of the hyposthenic and asthenic habitus seems to offer the most difficulty in examination. The sigmoid in the hyposthenic and the entire colon in the asthenic offer considerable difficulty. When the pouch of the hyposthenic is filled, there is enough looping of the sigmoid to obscure some of its parts and sometimes obscure a division of the iliac colon. In the asthenic habitus with the elongation of the large bowel many segments of the colon overlap and obscure a clear vision and possibly a defect.

There are certain signs and clinical observations that indicate a colon examination with the small enema before the routine gastro-intestinal examination is made, viz.:

1. If the source of bright red blood in the stool is not determined by digital or proctoscopic examination.

2. In recurring attacks of diarrhea and constipation with pain on the left side.

3. To indicate the effect of treatment of the colon, whether it be surgical, medical or radiation.

4. In suspected obstruction of the colon.

5. A follow-up examination to determine the presence of a small defect in the colon.

The interpretation of all colon symptoms and signs is too broad a field to be discussed in detail in this short report but a brief outline as a basis for review follows:

Colonic diseases may be divided into two general groups, (1) diseases originating within the colon itself; (2) colon disturbances arising from other organs and systems.

Diseases arising within the colon itself are tumors, infections, parasites, etc. Under infections of the colon, I wish to discuss colitis briefly. Colitis is an infection of the colon. If ulcers are present and can be observed it is an ulcerative colitis. If there is mucus present it does not follow that this is an infection or a mucous colitis. Mucus is secreted normally in the colon and any irritation may cause an extensive secretion of mucus. The effect of the irritation of the colon is recorded on the films as a narrow colon, with haustral markings absent or somewhat separated and shallow, associated occasionally with a questionable string shadow. Barger<sup>7</sup> has suggested that the term "irritable colon" be used rather than the term, "mucous colitis."

The disturbances outside the colon are functional disturbances. They are very numerous and may be subdivided into the following general groups:

1. Disturbances secondary to organic disease.

2. Anomalous formations.

3. Disturbances associated with trouble in other parts of the digestive system, such as gallstones, appendicitis, hemorrhoids, gastric ulcer, duodenal ulcer, etc.

4. The functional colon associated with other systems outside the digestive system. For example in the respiratory system there may be a relaxed colon in chronic pulmonary tuberculosis. In diseases of the cardiorenal-vascular system there is frequently an irritable colon. In the endocrine system there is very frequently an irritable colon associated with hyperthyroidism and hypopituitarism.

In conclusion, I believe the small enema with several films has a distinct advantage and is an improvement in the study of the colon based upon the following observations:

1. A better view of the rectal pouch and sigmoid.

2. A method to study the function of the rectal pouch.<sup>4</sup>

3. The method of choice in suspected colon obstruction.

4. A supplementary examination to determine the presence of a small defect in the colon.

5. To investigate the effects of treatment.

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#### TREATMENT OF FRACTURES OF THE UPPER END OF THE FEMUR\*

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Fracture of the upper end of the femur, through the femoral neck or the trochanters, usually occurs in persons beyond fifty years of age. This is the most important statement that can be made about this injury. It is on

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account of the age incidence that the immediate mortality is high because a relatively large proportion die from circulatory insufficiency and pneumonia during the first three weeks. The treatment of the hip injury must be managed so that every mechanical aid can be given to the circulation, already presumably impaired, in addition to the specific circulatory stimulation that may be indicated.

After these provisions have been taken care of satisfactorily the age element has a most significant bearing on the prognosis. In my opinion, the influence of the age of the patient on the reparative process of the bone is not nearly so large a factor in the prognosis as is its effect on the recuperative properties of the entire organism. In a person past middle life who must be confined to bed for many months, as is the case with many of these patients, the mental and physical rehabilitation is a matter of grave concern and this is distinctly reflected in the trend of modern treatment.

I feel that not nearly enough emphasis has been placed on the importance of distinguishing between subcapital or central fractures of the neck and those involving the base of the neck or intertrochanteric region. It is chiefly on this account that I have included in one paper two lesions as dissimilar from the standpoint of treatment and prognosis as two fractures can be.

In the subcapital or central fractures there are two comparatively small surfaces of raw, cancellous bone to be manipulated into and maintained in approximation. The upper fragment is small, almost round and freely movable and therefore very difficult to control. The blood supply to the site of this fracture is very meager in late adult life<sup>1</sup> and this has quite an adverse influence on the repair of the bone. Fractures at the base or intertrochanteric region, on the other hand, have broad surfaces of cancellous bone which are relatively easy to bring in proper apposition and to maintain the position with several types of appropriate apparatus. The blood supply is particularly good at this point and repair of the fracture is probably as prompt and secure as at any place in the skeleton. If any existing displacement is reduced and the reduction maintained with proper attention to length, abduction and internal rotation, union can be expected in from five to eight weeks. In the latter type, I prefer the suspension-traction method of Hodgen to fixation in plaster so that motion of the knee may be started early and avoid this troublesome complication of the plaster fixation method. All apparatus may be removed in from five to eight weeks and the patient en-

couraged to active use of the extremity without weight bearing. Walking with crutches may be started when active motions have become fairly free and muscle strength has improved to the point of being able to lift the weight of the extremity off the bed when lying supine. In persons who are not feeble this is usually accomplished in a short time.

Subcapital or central fractures of the neck of the femur are an entirely different problem. The most widely approved nonoperative method of treatment in this country is the manipulation of Whitman (traction, extreme abduction and slight internal rotation) with the application of a plaster spica while this position is maintained. If the cast is properly applied these patients can be turned on one side or on the face and general nursing problems can be well taken care of; but they are consigned to from six months' to one year's recumbency or comparative inactivity with the consequent mental and physical deterioration. The cast must be worn at least three months and weight bearing is advised against for approximately a year without an appliance to take some of the weight off the injured femoral neck.

Whereas in the intertrochanteric fracture one can practically assure the patient that he will get solid bony union if he is able to withstand the shock incident to the injury, one cannot offer such a sanguine prognosis in the central or subcapital fracture. I would like to quote from a recent report<sup>2</sup> of the commission appointed by the American Orthopedic Association to investigate the results of central fractures of the neck of the femur. They were able to compile end-result data on two hundred sixty-two cases treated by closed or nonoperative methods in eleven clinics in this country. Of these two hundred sixty-two, one hundred thirty-six, or 51.9 per cent, had proved bony union after one year, ten who did not have proved bony union were considered to have good functional results and one hundred twenty, or 45.8 per cent, either had nonunion or died before union took place. This report comes from representative American fracture clinics and is, I believe, a fair average of end-results. It is not a very happy prospect to offer patients with central fractures of the neck of the femur. It is the realization of the bad average of end-results in these cases that has led surgeons to look for more accurate methods of obtaining approximation of the fragments. Any method that does not appose the raw bony surfaces and hold them securely in apposition cannot offer much improvement over the method employed by Whitman.

It would seem that the only way accurately



to control the small, deep seated, freely movable capital fragment, is by open operation. Here again the age problem enters, as many of these patients are distinctly unfavorable risks for a major surgical operation. Proper exposure of the fragments is not a simple task; the problem is a serious one but properly selected cases seem to withstand the operative procedure as well as when the manipulation is done under anesthesia.

If open operation is decided upon, the method of fixation of the freshened fragments is an important point. The tibial bone peg applied in the manner advocated by Albee is perhaps the best method theoretically. The principal disadvantage aside from the technical skill required is the prolongation of the operation. The removal and fashioning of the tibial graft and the meticulous preparation of the bed in the neck and head of the bone is a time consuming operation in itself. Sterilized beef bone pegs and metal nails are used and consume no time in preparation during the operation. The relatively large amount of the apposing surfaces of cancellous bone displaced by the foreign material introduced is probably chiefly responsible for the disappointing results with these agents. Smith-Peterson<sup>3</sup> has remedied this feature by devising a nail of rustless steel with three wide, thin flanges which gives a minimum displacement of bone and holds the head securely from turning on the neck. The writer can testify to the simplicity of its application after the fragments have been properly exposed and approximated. The short period of recumbency and inactivity following fixation with the Smith-Peterson flanged nail is one of its chief recommendations. The extremity may be swung in a suspension-traction brace in abduction immediately following operation and exercise of the muscles of the extremity started in a few days. Smith-Peterson gets his patients up on crutches, wearing a leather or plaster hip spica appliance from the knee to the waist, in three or four weeks following operation.

The report of the commission of the American Orthopedic Association on the results of open operative treatment of these cases is interesting. End-result data after one year were obtained on one hundred three cases in which open operation had been the method of treatment. Of the one hundred three, eighty-nine, or 86.1 per cent, had proved bony union and fifteen, or 14.1 per cent, had nonunion or had died before union took place. The material improvement in the results of the operative procedure shown in this survey can be partly accounted for by the fact that the cases oper-

ated upon were probably selected surgical risks—younger or better conditioned subjects. In contemplating operation, the utmost judgment must be used in selecting cases suitable for a major surgical procedure.

In central fracture of the neck of the femur with nonunion the open operation must be considered or the patient consigned to crutches or wheel chair for life. Walking appliances for taking the weight off the neck of the femur are not tolerated by old people. The nature of the surgical procedure in such cases often cannot be decided upon until the head of the bone is exposed. If the head is soft and not suitable for future weight bearing, as often is the case, the reconstruction operation devised by Whitman seems to me to be the method of choice. In this procedure the head is removed from the acetabulum and the portion of the great trochanter projecting above the neck is cut off level with the superior surface of the neck thus leaving the gluteal muscle attachments intact. The neck is then manipulated into the acetabulum and the portion of the great trochanter is fastened to the lateral surface of the femoral shaft, in this way preserving the hip abductors.

If the head is considered viable and suitable for weight bearing then the apposing surface of the fragments may be freshened and fixation employed as in a fresh fracture.

#### CONCLUSIONS

In conclusion let me emphasize the following:

1. The importance from the standpoint of treatment and prognosis of distinguishing between intertrochanteric fractures and those of the central or subcapital portion of the neck.

2. The gravity of the situation, which some member of the patient's family should be made to understand. That bony union or an extremity suitable for weight bearing is extremely uncertain. That if bony union is obtained by months of confinement to splints, the restoration of the former physical and economic status is unlikely if the patient is beyond sixty years of age.

3. That adjustment and fixation of the fragments by open operation in properly selected cases is advantageous in fresh fractures as well as in cases of nonunion. This method should not be undertaken without experience in exposure of the hip joint—a rather difficult surgical procedure.

4. The Whitman method of reduction and fixation of central fractures of the neck is the best nonoperative procedure and therefore the one to be recommended in the vast majority of such cases.

5. Patients with nonunion can be given stable, weight-bearing hips provided they are suitable subjects for a major surgical operation. This is true even though the head of the bone is atrophic or partially absorbed.

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2. From the Report of the Executive Session of the Forty-Fifth Annual Meeting of the American Orthopedic Association.
3. Article by Smith-Peterson, unpublished, read before the American Orthopedic Association, June, 1930.

#### DISCUSSION

DR. FRANK G. NIFONG, Columbia: It is encouraging to see young men producing papers on the fracture situation. Some of us who are older can remember when we used to read stories and look at pictures in Fox's Book of Martyrs of the Spanish Inquisition and some of the torturing fracture apparatus remind us of these old pictures. It is encouraging to see more attention being given to the fracture situation by the surgical organizations and the orthopedic surgeons. They are making progress. Still, you are reminded of some of the pictures of the Inquisition when you look at the apparatus they stick into the bones, or pull through them, or pull on them in various ways. One essayist accentuated the thought that the patient was something to be considered in the treatment of fracture, and that is one thing I want to stress in Dr. Stewart's paper, that we must consider the patient. The prime consideration is the patient himself. You might fix up mechanically most of the defect but the patient may have little consideration. I was amazed during the late war to see the great multiplicity of pulleys and apparatus of all kinds hanging over the beds—everything had to have a separate pulley. What we need is more common sense, not more apparatus. And still they come along with plaster of Paris to torture the old people—the Whitman abduction. You can get abduction without a plaster cast. It may be better for the patient to live with a leg not functioning than to die because he was put in an apparatus. Take the intertrochanter fracture mentioned by Dr. Stewart—it is a simple matter to treat if you treat the patient. You can do it with only a piece of wire and a rope—you have extension, suspension, abduction, immobility—all the necessary principles of treatment of fracture of the hip or any other long bone you desire with a Hodgen splint.

DR. J. T. HORNBACK, Nevada: I would like to ask Dr. Stewart how much weight he uses and how long he uses it?

DR. E. P. HELLER, Kansas City, in closing: Dr. Nifong did not direct any of his remarks to my paper, but he made some disparaging remarks about the torturous system whereby the patient is swung up by apparatus, and for that reason I reply that this Bohler splint is about the simplest and least torturous apparatus for the patient that we have ever had. Used with local anesthesia it is applicable to the elderly. Dr. Cunningham, of Oklahoma City, is going to put on a series of cases of elderly people, and he will surprise everybody by the good results he has gotten by applying the Kirschner wire through the condyles of the femur and letting the patients lie in bed with the thigh supported on a Bohler splint. The patient is free of pain, the doctor does not break his back applying plaster. The pa-

tient is put in the splint when first seen and is not removed until able to walk about with a walking caliper or crutches. These patients can be set up in bed and moved about; they can be turned over. The ice tongs are torturous looking, but no one complains about them. They are put on under local anesthesia.

I think this point of too much apparatus is not well taken. I think we are getting to the point where instead of breaking backs to reduce fractures of the legs or thighs we now let the splint do the work and we use our heads more and not so much muscle.

As for the Russell Extension, Dr. W. Estell Lee, of the Pennsylvania Hospital, used it on 100 cases and his average is one quarter inch shortening. It can be used in a farmhouse as well as a hospital. If there are a number of pulleys it is because they are needed, not because they are torturous.

DR. J. EDGAR STEWART, St. Louis, in closing: As to the amount of weight used, I think the amount of weight in fracture depends on the amount that it requires to accomplish the reduction. The amount used in fracture of the neck of the femur, or intertrochanter fractures, which is the only type in which I have used it, is very little. I think the large amount of weight in any fracture of the femur should be used in the beginning, lessening it, rather than using a small amount and adding to it day by day as you find it is not enough. I would say about sixty pounds on a fracture of the femur that is overlapping and has been for some days, take some of it off at the end of twelve hours, rather than start in with ten pounds and work it up to sixty.

I agree with Dr. Nifong that the use of the Whitman abduction in fracture of the neck of the femur is a rather barbarous affair and I dread to put it on old patients, but I do not know of any other way in which the result can be accomplished and the patient taken care of in bed as well as with the Whitman abduction cast unless the patient is of the type that can undergo a major surgical operation and have the fragments put in apposition by open operation and maintained by some method.

### NONVENEREAL PROSTATITIS\*<sup>1</sup>

OTTO J. WILHELMI, M.D.

ST. LOUIS

It was a two-fold idea that prompted me to write this paper; primarily, to demonstrate that prostatic infection of a nonvenereal origin does exist and, secondarily, that its occurrence is relatively more frequent than the average practitioner surmises. In scanning the literature during the past fourteen years I have found but two essayists that dealt specifically with this subject, namely, C. K. Swinburne and Theo. Baker. This substantiates the rarity of statistics and lack of knowledge on this subject.

A nonvenereal prostatitis is an inflammatory, infectious condition of the prostate and seminal vesicles the etiology being other than the gonococcus—in short, a prostatitis in which

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

<sup>1</sup> Read before the Southwestern Branch of the American Urological Association, Lincoln, Nebraska, October 30, 1930.



the gonococcus cannot be isolated from culture or demonstrated by smear from the prostatic secretion and where the patient denies all previous venereal infection.

The urologist has appreciated this condition for a number of years but the general practitioner and internist have either questioned such a pathological entity or have failed to record the cases discovered in their examinations. Patients may be thrown into matrimonial controversies, considered poor risks for insurance, or hurled into a profound melancholia or a psychic state when this condition is not thoroughly understood by the physician and made clear to the patient. Several months ago a patient committed suicide in one of my clinics the cause of a psychic state produced by nonvenereal prostatitis.

The diagnostician should be alert to the possibility of the nonvenereal prostate as a site of infection and not be misled by the history to neglect the examination of the gland and its secretion in his routine study. Often vague and distant symptoms are due to an underlying prostatitis.

Investigators of this problem have found that the frequency of this condition varies from 18 to 25 per cent. In an analysis of 500 cases of chronic prostatitis I found 220 cases which were nonvenereal in origin, or about 44 per cent. Members of this group not only denied all venereal history but gave negative smears and cultures for the gonococcus. These patients gave typical and atypical prostatic symptoms and their secretions contained over 30 pus cells to the high power field. The technique followed in this series was, (1) the anterior urethra was irrigated with hot normal saline solution and the meatus washed off; (2) the prostate and seminal vesicles were massaged and the secretion caught on blood agar. About 80 per cent of this series showed staphylococci on culture and the colon bacilli were the next frequent invaders, appearing in about 12 per cent. Other bacteria found were streptococci, diphtheria bacilli and micrococcus catarrhalis. Thus we see that a variety of bacteria other than the gonococcus may cause a prostatic infection and that by far the most prevalent nonvenereal invader is the staphylococcus.

The symptoms in most cases are quite similar to those found in venereal prostatitis. These patients often complain of low lumbar backache, tired legs, early morning discharge, frequency, tenesmus, urgency and pyuria. Patients often complain of itching and irritation around the rectum. Twenty-eight complained of a fullness in the rectum as though a heavy lead shot were pressing there. One hundred

fifty-six cases were alarmed because of their urethral discharge. Thirty-four had sexual derangements, such as incomplete erections or premature ejaculations. Forty-two had nervous gastro-intestinal upsets and pronounced constipation. Eighty-one cases, or about 36 per cent, first noticed symptoms of discharge after excessive sexual indulgence, proving that the infection most probably preexisted for years and was dormant in character. The routes of infection are probably the following: (1) via the urethra; (2) from the bladder; (3) from the rectum; (4) through the blood and lymph.

I am convinced that any one doing urology has seen numerous cases of urethritis which contained only colon bacilli on smear and where the urethra was infected during sexual congress. We also know that colon bacilli are frequent invaders of the urethra. Thus, bacteria may in this fashion infect the urethra and eventually ascend and infect the prostate.

Most of us have seen an old cystitis clear up, only to leave an infected prostate. It is quite natural that dirty infected urine constantly passing over the posterior urethra should infect the prostate. Thus, we see how descending as well as ascending infections can cause prostatitis.

In spite of the fact that Denonvillier's fascia, which lies between the prostate and rectal wall, is very thick and tough I am convinced that colon bacilli do transgress this area and infect the prostate. Fourteen cases gave histories of pronounced constipation, which were relieved after prostatic treatment and definitely cleared after eradicating the prostatic infection. I do not think any one today questions that the blood and lymph are a source of transmitting infection to the gland. A diversity of foci were found in my compilations. Ninety-two gave a history of severe tonsillitis; 19 furunculosis; 67 sinus infections; 21 abscessed teeth; 8 influenza; 6 arthritis; 3 conjunctivitis; 3 colitis; 1 mastoid. Thus we see that prostatitis of nonvenereal origin is almost without exception associated with some focus of infection elsewhere in the body which still persists or has recently existed prior to the time the prostatic pathology is discovered.

Complications were not unusual in this series. Epididymitis was by far the most frequent, running about 18 per cent. Next in frequency was prostatic abscess, pyelitis and stricture of the ureter. The diagnosis is quite simple for one who is familiar with the size, consistency and shape of a normal prostate.

Most of the patients in this series had soft, boggy prostates which had areas of induration along the lateral margins. The gland is not

indurated throughout as is often felt in chronic venereal prostatitis. The gland is quite sensitive to palpation and the seminal vesicles are enlarged and tender. It is quite easy to differentiate this condition from the enlarged firm prostate found in hypertrophy and the stony hard prostate which occurs in malignancy. The microscopical and cultural examination of the secretion clinches the diagnosis because secretion usually shows 20 to 40 pus cells to the high power field. The gonococcus is eliminated by stain and culture growths, but often after several massages the secretion will increase to such an extent as to cause a urethral discharge very typical of that seen in acute gonorrhea. This secretion originates from the opening up of the occluded gland ducts resulting in freer drainage from the bottom of the individual glands where the pus has been stored. The degree of prostatitis may be no criterion of the virulence of the prostatitis, for in several instances very virulent bacteria were cultured from a rather negligible prostatitis.

One should not be misled by the size of the gland when examining a patient for prostatic infection. Often there is a disproportion of the size of the gland contrasting the amount of the infection and, therefore, small glands may contain a high degree of infection. This again merely emphasizes the importance of examination of all prostatic secretions.

It was interesting to note that some of these cases were of a provocative nature and required one or two massages before they would demonstrate pus under the microscope. Prostatic secretion may contain but few pus cells but at the same time contain many virulent organisms which are causing pronounced systemic disturbances. Do not be misled and think that pyuria is essential with a prostatitis for in about half of these cases it was negligible.

#### TREATMENT

The treatment of nonvenereal prostatitis does not vary from the treatment of venereal prostatitis, but several interesting features were brought to light. If the patient had a urethral discharge he responded immediately to local treatment with an abatement of all discharge in two or three treatments, which does not occur in gonococcal discharges.

From my observations I have concluded that it is not unlikely that many of these panaceas which have eradicated gonorrhea in but a single treatment or two, were not combating the gonococcus at all but probably a young, new colon bacillus. Young colon bacilli have all the morphological characteristics of a gonococcus and at times are very difficult to differentiate.

I have yet to find a therapeutic measure that will destroy an unquestionable gonococcus and cause an abatement of discharge in but a few treatments. The amount of prostatic sensitivity and infection was often relative to the condition of the focal infection, a flare-up of the latter often causing a flare-up of the prostate. When the focal infection was eradicated the prostatitis readily cleared up also.

It is a moot question in many of these cases which area was primarily the source of the infection; whether the prostate received its infection from some other focus or whether the prostate acted as a source of infection for some other area I am quite at a loss to say; especially in old infections would it be extremely difficult to determine.

Relative to treatment, naturally our ambition is to eradicate any and all infections whatever be their source; so with this in mind we must clean up our end of the field and also have the other foci cleared up.

The treatment of prostatitis, however, is quite different from that of a focus of infection such as teeth or tonsils for the latter can be removed and the source exterminated. In treating the prostate the improvements are varying and often very trying and disappointing.

The gland should be treated with the same precautionary measures that are exercised in the treatment of acute gonorrhea. We should limit ourselves to the use of irrigations until the glass tests show a clear urine with shreds, and then proceed gradually with mild massages, deep instillations and dilatations with the Kollman dilator. Be cautious not to exercise instrumentation on any case showing cloudy urine, for embarrassing complications usually result which retard the operator's progress as well as the patient's cure.

It should be borne in mind that most of these cases are chronic to the extent of a number of years, and, therefore, they necessitate months of strenuous treatment in clearing them up, often taxing the patience of the operator and exhausting his urological armamentarium.

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## DISCUSSION

DR. C. D. HUMBERD, Barnard: This paper is very good and I believe quite valuable. I would like to ask the Doctor one question. Most of us really have been thinking of nonvenereal prostatitis as more or less an acute disease. I would like to ask him for a broad statement since he has had so many cases as to the early history and the duration of the type of prostatitis described here, compared with the specific type that we most commonly see.

DR. OTTO J. WILHELMI, closing: The duration of these cases of course varies. Usually they come after some other infection. If an individual has recently had a bad tonsillitis, or some other infection, his prostate usually flares up at about the same time. It has been quite a feat to determine which is the primary focus, whether the prostate is the primary seat of the infection or whether the other focus that we found was causing the prostatitis.

DR. HUMBERD: In general would you say the duration was long or short?

DR. WILHELMI: The duration is much shorter than in venereal prostatitis.

The point I was trying to bring out, especially to the internist, is that where there is an underlying focus some place we should not neglect examining the prostate, even though the patient gives no urinary symptoms. Be sure there is not a focus of infection in the prostate that is the cause of the systemic disturbance.

## THE PART TIME HEALTH OFFICER AND RURAL SCHOOL SANITATION\*

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### DIPLOMATIC PHASE

Until quite recently the work of the health officer was principally clerical, consisting chiefly of the strict enforcement of quarantine, cleaning up nuisances offensive to sight and smell, work which might be done by a layman as well as physician. At the present time we possess a vast amount of technical knowledge concerning contagious diseases and in many instances this knowledge is sufficiently complete to make sanitary medicine an exact science.

The sudden development of new phases of old diseases and the change in virulence in the more common diseases make it requisite that the health officer be well informed and up-to-date in medicine and epidemiology. To acquire this knowledge it becomes necessary that he keep in touch with the brighter lights of the profession by attending meetings where matters pertaining to public health are discussed, read the latest literature on the subject and be constantly alert to all advancement in preventive medicine.

A few years ago the health officers of the State assembled at the State University at Columbia for the purpose of receiving instruction

in the work before them. They were given instruction in the laboratories of the university and listened to lectures on epidemiology, bacteriology and preventive medicine. The lectures were given by men of national repute, and the instruction received in this way was intended to make us more fit for the work at hand and by having knowledge of the means to prevent the spread of infectious diseases enable us to better serve the public. Yet, knowing how to carry on the work intelligently does not accomplish all it should without the cooperation of laymen and physicians.

The fact that physical sickness and bodily defects dull the mind and blight the soul of man is sufficient reason for a community to look after the welfare of its members even though the evils be not always fatal. The welfare of a nation depends upon the health and physical well-being of its people; if this truth is applicable to a nation it is also applicable to a community. To quote Professor Winslow, of Yale: "Public health is the science and art of preventing disease, prolonging life and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for early diagnosis and preventive treatment of disease, and the development of the social machinery, which will insure to every individual in the community a standard of living adequate for maintenance of health."

The ignorance and prejudice of some members of the community and the indifference of others do much to defeat the purpose of the health officer in his effort to improve sanitation.

Find fault with a man's wife and he may agree with you; but find fault with his well and his temper becomes ruffled and all riled up. He will contend that the well contains the best water to be found in the county; he asserts that nothing can enter the well to contaminate the water, although the top is uncovered, the well unprotected against seepage from its surroundings, and surface water may enter freely during a rain. To argue with him would be useless—he would probably make the statement that there has been no typhoid fever or other trouble that may come from impure water among the users of water from the well, which shows that the well is satisfactory! Argument or reasoning, therefore, is useless. The fact that he knows of the unsanitary conditions should convince the health officer that the thing to do is to complete the survey and make notation of the alterations necessary be-

\* Read before the meeting of the Public Health Association, Jefferson City, May 5, 1931.

fore the well can be accepted as safe by the state board of health.

It is an unfortunate fact that an illiterate person is sometimes elected clerk of school. To such a clerk science means little and an attempt to reason with him along the line of sanitation does not accomplish much. Fortunately, we meet clerks who are intelligent and willing to listen to reason and will adopt any suggestion which may improve sanitation, or otherwise improve conditions in the school. When the health officer makes known to the clerk the fact that if his board would have the school under its jurisdiction known as a first-class one, or remain as such if it has gained such a reputation, alterations must be made as directed to meet the requirements of the State Board of Health, things begin to loosen up a little in the dome of the individual, be he illiterate or elusive, and action in the right direction is likely to follow and the necessary alterations will be made.

It has been said, "The pride of science is humble when compared with the pride of ignorance." At this point I would say, pride does much to bring about a change in the affairs of a community. Pride sells automobiles to the illiterate as well as to the educated. A whole family, whatever their former disagreements, are in perfect agreement over the suggestion that they purchase a new automobile because their neighbor has just purchased one. If possible to arouse pride in the patrons of a school to the extent of outshining a neighboring community in having a school of the first class, a better school, conditions more sanitary and comfortable for their children than a neighboring school, the battle is won and advancement assured.

By education in the schools we advance sanitation and, as "knowledge is power," we have a weapon with which to win the battle for sanitation in country schools.

I have found pride lacking in some of the country schools I have visited. In a school I visited recently I saw the teacher dressed in bib overalls, presenting more the appearance of a coal miner than a professional person. The room was not as clean and tidy as it should have been and there were children with hair unkempt and hands and faces unclean, plainly showing a lack of pride and that little or no thought was given to sanitation by the one in charge of the school.

To accomplish all that we should in the way of sanitation in rural schools it is necessary in many instances to arouse the teacher from a state of lethargy (a don't care habit) to the spirit of "go to it." Pride in personal appear-

ance as well as the pride of having one's pupils show advancement in the various branches of study is not to be lost sight of, as it does much to create respect for the teacher and is uplifting in many other ways.

The teacher may call the attention of the children to conditions existing in the schoolroom, or other environment—teaching hygiene in a practical way by which ideas become thoroughly fixed in the mind of the pupil not soon to be forgotten; the children become enlightened, bring pressure to bear on their parents and directors of the school, with the result that things existing and detrimental to health, which otherwise would have remained as they were, are corrected.

By working in conjunction with teacher and pupils I have been able to bring about changes to the extent that a school takes on new life—a board of pessimists becoming optimists, the teacher a "peptimist," and all taking hold with a snap and vim that lifts the school from a lower to a higher class.

The teacher should in every instance be worthy of respect of the ones he is teaching—should be an example worthy of emulation, willing to put forth the best there is in him for the good of humanity. Let him teach sanitation, preach sanitation, live and make his teaching practical by exemplifying the work, and advancement is certain. No better place to do this is found than in the schoolroom, where manhood and womanhood are developing, no better time than now.

As I get it, sanitation really means the same thing as hygiene, it being merely a Latin word for the Greek word "hygiene." However, as now generally used, hygiene applies to the body and sanitation to the place.

The fact being that children at school in their play and work are at times "all over the place," it behooves us to look well to the grounds as well as the house in which they work, play and live, that they may not come in contact with anything poisonous or contagious. If I do not make my meaning clear I would direct the teacher to his Webster, wherein he may learn that "Poison—that which taints or destroys moral purity or health, the poison of an evil example, poison of sin"—is to be avoided as a cure is not always possible. "Education is the vaccination that confers immunity, but it does not always take."

As deputy state commissioner of health, our work brings us directly in contact with the public and calls for diplomacy as well as a knowledge of bacteriology, epidemiology, chemistry and sanitation, if we would succeed in dealing effectively with the public. Failure of the



health officer to do his duty has in many instances resulted in lack of interest by the public in sanitation in the country schools.

Public sentiment when aroused is a wonderful agent to help bring about needed reforms, and if the health officer is a live wire and able to show when reformation is necessary, if he goes about his work with a determination to win, he will be able to surmount many obstacles thrown in his way by politicians and other meddlers. In fact, by showing the public that you are on the job with a determination to win, defeat will be turned into victory, and cooperation of the public assured.

There is a personal side to the calling of a health officer. If he be a humanizer, so-called, he may be able to handle many a delicate situation and get on with the clerk of the school board without friction and perhaps win his cooperation in matters sanitary. It may be well to be a little patient and listen to what he has to say rather than engage in an argument.

Human beings must have an opportunity to "show off"—at least in moderation—in order to be happy. So, if you would leave the fellow in a happy state of mind it may be well to listen to his views. By doing this we are likely to accomplish more than we would by engaging in an argument to carry our point thereby arousing him to anger and leaving him in a state of rebellion. Granting this, one should yet possess enough grit to stand on principle, comply with the law and not do anything which may bring discredit on the calling of a health officer. Neglect on the part of a deputy to enforce the law when it becomes necessary brings about contempt for the law, lack of respect for the health officer and little progress results.

It has been my custom when visiting schools to talk over the situation with the teacher in charge that I may learn from him the changes he thinks necessary, if any, to improve the conditions existing. My talk with them frequently results in arousing enthusiasm in the teacher and pupils to such a degree that their cooperation is enlisted and the environment, both within and without the schoolroom, is changed for the better.

Vying with each other for the betterment of their respective schools, I have known teachers of public schools with assistance from the pupils to scrub the floor of the schoolroom frequently in order to remove the dust and thereby prevent irritation to nose and throat, as well as prevent the spread of infection, everything in the room being arranged so as to take on a homelike appearance.

Through cooperation of teacher and pupils, pressure has been brought on directors and

patrons of the schools to the extent that schoolrooms have been repaired and the walls and ceilings repainted with suitable colors to improve illumination and rest the eyes.

Sanitation in the rural schools depends for much of its success upon a public which understands and appreciates its importance. The responsibility resting with the whole educational and social system, it is to the school teachers we look for support in the advancement of sanitation, as they are in a position to bring these matters to the attention of the rising generation—the children of today becoming the citizens of tomorrow.

Authorities are agreed that community life cannot be maintained on a very high plane without rigid health regulations. In framing a city charter broad powers are given boards of health so that the inhabitants may be protected against unsanitary surroundings and infectious and contagious diseases. Experience has proved this to be necessary. If necessary in the city it is certainly worth while in rural districts.

The health survey of schools is worth while if done by one who understands the work, is willing to do that which should be done and will get in touch with all concerned to the extent that there be hearty cooperation, uniformity in action and harmony throughout the procedure. In fact, be a health officer in spirit as well as name. Radiate sunshine as you go about the work and your visits to the school will be welcome and you will accomplish much.

Anticipating discussion, I have omitted much that might have been said but which would make this paper too long for the time allotted. There are other papers to follow which no doubt will bring out technical points I have purposely left out.

Although seemingly very commonplace, I hope the facts I have mentioned and which I have learned from experience in the work may prove of sufficient interest to bring forward experiences others may have had in line of duty and arouse enthusiasm to the degree that this meeting will resolve itself into a good old-time "experience meeting," such as many of us no doubt have witnessed in years past.

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#### TEACHING HEALTH

Many high school students have grossly erroneous impressions concerning the physiology and anatomy of the human body, according to Dr. J. Mace Andress, the editor of the health and school department of *Hygeia, the Health Magazine*. One girl thought that the heart might be the size of a miniature candy heart while another believed that it was fully as large as a tea plate. Health education should be in the high school curriculum, pleads Dr. Andress.

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NOVEMBER, 1931

## EDITORIALS

### THE RIGHT TO BE BLIND

On the twentieth of October the St. Louis Medical Society and the St. Louis Society for the Blind met in commemoration of the fiftieth anniversary of the inauguration of the Crede method of preventing ophthalmia neonatorum. Statistics show that the Crede method accomplishes all that was anticipated from it, namely, the prevention of blindness. Among the latest reports is that of the Maryland School for the Blind, typical of records of all similar schools. In 1905, 40 per cent of the new admissions and 27 per cent of the total enrollment of the school were cases of this unnecessary blindness. In 1930 only two of twenty-four children entering the school were blind because of ophthalmia neonatorum and only 9 per cent of those attending the school were blind from this cause. The National Society for the Prevention of Blindness reported the incidence of new cases of ophthalmia neonatorum in all schools for the blind in 1930 as 9.3 per cent.

In 1921 the Missouri Legislature passed a bill requiring the use of a prophylactic in the eyes of new-born babies. This bill was sponsored by the Missouri Commission for the Blind and the Missouri State Medical Association and became a law. In view of the statistics and the adoption of laws in many states to guard against unnecessary blindness, the recent action of Governor Emmerson of Illinois in vetoing a bill requiring the instillation of a prophylactic in the eyes of new-born babies is an astounding step backward to the Dark Ages. The governor based his action on an opinion of the attorney-general of the state holding that the enforcement of such a law exceeded the police power of the state and that individuals have fundamental rights which must be respected.

The *Survey* aptly describes the situation: "Among health organizations there are few

records as clear and convincing as the showing of the National Society for the Prevention of Blindness as to the decline in blindness among new-born babies since statutes have compelled the use of silver nitrate at birth. . . . The loss of sight is an incapacity equivalent to death in a schedule for evaluating industrial accidents recently published by the Association des Industriels de France and now under discussion by the International Labor Office. Even to this extent new-born babies in Illinois continue to enjoy their inalienable and constitutional rights."

So, while St. Louis and Missouri commemorated a procedure which has decreased blindness throughout the world, the third largest commonwealth in the United States quibbles over a legal interpretation of the right of the commonwealth to protect its citizens from calamity by declaring that the new-born babe has certain "fundamental rights which must be respected," in other words, the right to be blind.

### UNWISE, UNSOUND AND INSIDIOUS

The resolution adopted by the House of Delegates at the Philadelphia session of the American Medical Association urging the Government to discontinue its plans for extending Government service to war veterans suffering from disabilities whether or not the disability was incurred during military service, warrants the support of every physician.

At present there are fifty-three veterans' hospitals with a capacity of approximately 26,000 beds. Immediately following the World War the Government made arrangements to provide hospitalization for every veteran who might be suffering from a disability incurred during the war or remotely related to his war service. In 1924 it was discovered that numerous beds in Government hospitals were unoccupied. Congress then passed a bill which provided for the hospitalization of veterans with disabilities not of service origin. Now the Veterans' Bureau estimates that 130,000 beds will be required to care for sick and injured veterans.

The cost of constructing sufficient additional hospitals to accommodate this number will be approximately \$300,000,000, the average construction cost of a hospital being from \$3000 to \$3400 a bed. The cost of hospital maintenance would be \$200,000,000 a year as a minimum and the cost of maintaining a staff would approximate \$20,000,000. Such lavishness when all peoples are laboring to prevent want and starvation during this period of depression is, to say the least, unsound and unwise.



The resolution adopted by the House of Delegates includes a constructive clause suggesting the substitution of a system of cash benefits to veterans who have incurred disabilities. Few, if any, fail to appreciate the justness of the Government giving full and adequate attention to disabled war veterans. Insurance actuaries estimate that cash benefits would not exceed \$80,000,000 and administration cost of approximately \$20,000,000 would make the total \$100,000,000. Thus there would be a clear saving of \$420,000,000 in the first year and thereafter a saving of more than \$120,000,000 annually.

The results of a recent survey indicate that there are 200,000 unoccupied beds in private, state and municipal hospitals and many of the private institutions are facing failure due to the present economical status when many persons are unable to pay for hospitalization. The number of unoccupied beds approximates the number of beds needed for the care of war veterans. With a cash benefit system the disabled soldiers would be assured of hospitalization and the private hospitals would receive sufficient support to carry them through the period of depression.

The physician is as much interested in general economy as is any other citizen but more specifically he is interested in the continuance of private hospitals for without hospital facilities his work is greatly hampered and as a consequence the sick suffer proportionately. Still another feature is even more vital to the medical profession. The plan of the Government to furnish free hospitalization to 156,000 of its population is, to quote from an editorial in the *Journal of the American Medical Association*, "an insidious approach to state medicine."

Few enterprises remain stationary, so it is only logical to assume that if this lavish plan is accomplished the situation of 1924 will be repeated; and it is not a strain upon one's credulity to see the Government at no far distant day offering and providing care and treatment of all sick and injured governmental employees, whence it is but a step to the Russian plan—then good-bye private practitioner.

#### RUDOLPH MATAS, M.D.

It is with deep gratification that the members of the medical profession in Missouri can join in the acclaim and homage paid to Dr. Rudolph Matas of New Orleans upon his seventy-first birthday and the fiftieth anniversary of his entering the field of medicine. It is a happy circumstance for Dr. Matas to know the esteem in which he is held by his confreres

for, as was said of him when the Henry Bigelow Medal of the Boston Surgical Society was presented to him in 1926, "Your generosity has led you habitually to magnify the importance of work done by others; your native modesty to minimize the importance of your own."

In appreciation of Dr. Matas, his ability, his loveliness and influence, the October issue of the *American Journal of Surgery* has been dedicated to him. The entire content of the volume was written especially for this Matas Birthday Volume. Among the contributors are men eminent in medicine in this country and abroad. The appearance and attractiveness of the volume, which is published by Paul B. Hoeber, Inc., New York, is in itself an homage to Dr. Matas. The contents will be republished in book form in a limited edition of 1000 copies. The first 400 books will be signed by Dr. Matas and will be available only through the committee headed by Dr. Isidore Cohn New Orleans, in charge of the undertaking. The rest of the books will be obtainable through the publisher.

Dr. Matas was born in Bonnet Carre near New Orleans of Catalonian parentage, his father being a physician. He was educated in Spain, France, Mexico and the United States. Soon after completing his medical studies Dr. Matas became identified with the department of anatomy of Tulane University and through his untiring efforts and his brilliant accomplishments became the successor of Dr. A. B. Miles whose death created a vacancy in the department of surgery. Dr. Matas is a leader in trampling on traditions when these conflict in his opinion with scientific principles and has been quick to grasp any method which meant progress. Many great American surgeons have unequivocally stated that Dr. Matas is the best informed surgeon in America.

The esteem of his colleagues and pupils can be judged by an excerpt from an editorial appearing in this Matas Birthday Volume of the *American Journal of Surgery*: "He is a true example of the individual who can still record impressions by continual work after he has been acclaimed by the whole world. If no other opportunity was ours as students of Tulane University than the inheritance that he was the great leader and inspiring teacher for more than thirty years, the privilege would be great. This teacher I am grateful to say lives for us to gaze upon. He stands as an embodiment of the truths of the profession which have been handed down to us through the ages.

"When the influence of many of us will be scattered as grains of sand in the wind, Dr. Matas' influence will be as a beacon light across

the storm-tossed sea in the lives of many men. The rays of this light will continue to carry the message of devotion to duty, love of mankind, mercy to the needy and sick, and humility.

"We marvel at him because he is possessed with Hippocratic powers of observation, the boldness of McDowell, the courage of Pasteur, the anatomic knowledge of Hunter and Da Vinci, and the cultural development of Weir Mitchell."

Appreciation of his ability was not limited to his own territory. When he was presented with the Bigelow Medal, Dr. Cushing said of him: "The surgery of the South flows by your door as do the waters of De Soto's mighty river by the levees of the romantic city which claims you. But you, Sir, on your record, would have been our choice, residing in any land. Chance only has placed us in a common nation. The Louisiana Purchase; the migration to Bonnet Carre of a Spanish physician, your father; the preservation of the Union, these three happenings conspired to make you a great leader in American surgery instead of the great leader that you otherwise might have been in the surgery of your father's Spain where you had your boyhood education; or in what might have been the Southern Confederacy, or indeed in what might have remained Colonial France.

"In your professional life you have exemplified what Guy de Chauliac said the surgeon should be: 'Bold when sure, cautious in danger, kind to the sick, considerate of your fellow workers, uninfluenced by gain. . . .' But you have been more than this. You have been a faithful and inspiring teacher in your Alma Mater to a host of students this past forty-six years. You have made notable additions to knowledge. . . . Your contributions have been characterized not only by a Castilian brilliance of conception but by a Gallic gift in exposition which we inarticulate people largely of Puritan ancestry can but envy and admire."

#### NEW ORLEANS SESSION OF SOUTHERN MEDICAL ASSOCIATION

The twenty-fifth annual session of the Southern Medical Association will convene in New Orleans for three days November 18 to 20. This will be the first time the association has met for only three days but there will be no curtailment of scientific activities. Two general clinical sessions are scheduled, one on Wednesday and one on Friday. The program has been arranged by the president, Dr. Felix J. Underwood, Jackson, Mississippi, State Health Officer of Mississippi, who will preside. This program will include outstanding

men not only from the local territory but from other parts of the country. New Orleans physicians through arrangements by a special local committee will furnish the program on Friday November 20.

The association has sixteen sections, viz., Medicine, Pediatrics, Gastro-Enterology, Pathology, Neurology and Psychiatry, Radiology, Dermatology and Syphilology, Surgery, Bone and Joint Surgery, Gynecology, Obstetrics, Urology, Railway Surgery, Ophthalmology and Otolaryngology, Public Health and Medical Education. These sections will meet in half-day sessions, most of them on Thursday and Friday, several on Wednesday. The section officers have arranged splendid programs including essayists known internationally for their achievements.

The American Society of Tropical Medicine, the National Malaria Committee and the Southern Association of Anesthetists will meet jointly with the Southern Medical Association, their programs being arranged in half-day sessions.

On Wednesday evening the presidential address will be delivered followed by the president's reception and dance. Alumni dinners are being planned on Thursday evening by all schools that will be represented in sufficient numbers. Golf and trap shooting tournaments will be held and the permanent as well as other trophies will be contested for. There will be entertainment for the visiting ladies planned under the direction of the Woman's Auxiliary to the Orleans Parish Medical Society.

An "After New Orleans, Panama" trip has been arranged through the United Fruit Company to leave New Orleans Saturday, November 21, visiting Havana, Panama and the Canal Zone and return to New Orleans.

New Orleans has increased her medical armamentarium since the association met there seven years ago. Tulane University School of Medicine has moved into a new and modern building on Tulane Avenue next to Charity Hospital. The University of Louisiana will have a full four-year medical school beginning this fall with a modern and complete building within the grounds of Charity Hospital. New Orleans has improved its hospital facilities and broadened the scope and effectiveness of its public health work and the Government is now completing a new marine hospital.

#### NEWS NOTES

The St. Louis Maternity Hospital was bequeathed \$1,000 by the will of David C. Biggs, former governor of the St. Louis Federal Reserve Bank, who died September 28.



Chile contributes about 90 per cent of the world's total production of iodine.

A fellowship in alkaloid chemistry has been endowed at the University of Virginia in the hope that an opium derivative without addiction properties will be evolved.

Viewing motion pictures causes less eye strain than reading a book for a similar length of time, says an officer of the National Society for the Prevention of Blindness.

The St. Vincent de Paul Hospital Chapel, Kingshighway Boulevard and Highland Avenue, St. Louis, was dedicated October 7. Following the dedication pontifical mass was conducted.

Dr. C. P. Fryer, formerly of Maryville, has accepted the appointment as field agent of the United States Public Health Service and health officer of Brown County, Kansas, with headquarters at Hiawatha. He assumed the duties of his new position on September 16. Dr. Fryer had been health officer of Nodaway County for the last nine years.

Dr. Alfred Goldman, St. Louis, head of the Washington University chest clinic dispensary, has been elected president of the St. Louis Trudeau Club for the study of the latest developments in the diagnosis and treatment of tuberculosis. Dr. Arthur Strauss, St. Louis, visiting physician at Washington University chest clinic, was named vice president and Dr. R. L. Ehrlich, Koch, assistant medical director at Koch Hospital, was reelected secretary-treasurer.

Members attending the annual session of the American Chemical Society in Buffalo in August were told that the vitamin D content of eggs can be increased by feeding larger amounts of this vitamin to the hens. Two chemists, Professors Francis G. McDonald and O. N. Massengale, described an experiment in which they fed pullets a diet containing cod-liver oil and then tried oil from the egg yolks on rats. Afterward they gave the same pullets a course of feedings on irradiated ergosterol of 10,000 times the strength of the codliver oil and again fed oil from the egg yolks to rats. They found that the egg yolk oil after the highly concentrated ergosterol feeding was 185 times as effective in preventing rickets as was the yolk oil after the codliver oil feeding, but during the period of feeding on ergosterol the hens lost weight and laid fewer eggs.

About 600 Indians have been graduated from recognized schools of medicine in the United States.

Members of the St. Louis Medical Society have been invited to attend clinical conferences which will be held this year at Barnes Hospital every Friday morning from 9 until 10 o'clock.

Dr. J. Curtis Lyter, St. Louis, was the guest of the Tri-County Medical Association in Centralia, Illinois, at its organization banquet, September 24. Following the banquet, Dr. Lyter delivered an address on "Some Clinical Observation Upon Bronchial Asthma."

Dr. William Washington Graves, St. Louis, director of the department of neuropsychiatry, St. Louis University School of Medicine, has resumed practice after devoting two and a half years of full time to accumulating data on scapular types and coexistent inherited variations in relation to problems of physical and mental adaptability.

Twenty-one members of the Texas Club of Internists, an organization of Texas physicians specializing in internal medicine which meets once a year for a week of study at an outstanding medical center, held this year's session in St. Louis September 25 with headquarters at Barnes Hospital and the Chase Hotel. Research work was conducted by the members in conjunction with the hospital staff and the faculty of the School of Medicine of Washington University.

A number of Missouri physicians appeared on the program of the twenty-fourth annual meeting of the Missouri Tuberculosis Association which convened in St. Joseph October 1, 2 and 3. Those who delivered addresses in the scientific sessions were: Drs. George H. Hoxie, Sam Snider and G. Leonard Harrington, Kansas City; Dr. Jesse E. Douglass, Webb City; Dr. E. E. Glenn, Mount Vernon; Drs. Howard H. Bell, Evarts A. Graham, R. C. Fagley and William L. Nelson, St. Louis; Dr. R. L. Russell, Jefferson City; Drs. R. L. Ehrlich and George D. Kettelkamp, Koch, and Drs. George A. Johns, Winton T. Stacy and G. T. Bloomer, St. Joseph. Taking part in discussions were Drs. Sam Snider and Herbert L. Mantz, Kansas City; Drs. H. De Lamater and Charles Greenberg, St. Joseph, and Dr. E. E. Glenn, Mount Vernon. Dr. James Stewart, Jefferson City, spoke at a dinner meeting and Drs. E. M. Shores, H. W. Carle and L. H. Fuson, St. Joseph, and James Lewald, St. Louis, presided at meetings.

Dr. Clarence C. Pflaum, Columbia, formerly instructor in pathology at the University of Minnesota School of Medicine, has been appointed assistant professor of pathology at the University of Missouri School of Medicine.

The annual session of the American Association of Railway Surgeons which was scheduled to be held in St. Louis November 4 to 6, 1931, has been postponed for a year according to an announcement made in the *Journal of the American Medical Association*.

A safe and apparently certain treatment of hookworm, the synthetic antiseptic hexylresorcinol, was announced by Dr. Veader Leonard, Baltimore, of the School of Hygiene and Public Health of the Johns Hopkins University, before the Section on Tropical Medicine of the Third Panamerican Medical Congress held in Mexico City, July 26 to 31. Dr. Leonard was the first to describe the bactericidal properties of this drug. Since 1924 it has been known that hexylresorcinol is stronger than carbolic acid and practically nontoxic to man so that during the last few years it has been used as an external as well as an internal antiseptic. Dr. Paul D. Lamson, Nashville, professor of pharmacology at the Vanderbilt University School of Medicine, discovered its potency in hookworm disease and ascariasis while investigating the problem of safe remedies for these conditions. The work was sponsored by the International Health Division of the Rockefeller Foundation.

Hookworm, the "disease of backwardness," is one of man's oldest known diseases for its symptoms were apparently described in ancient Egyptian papyri. In present times it is claimed that one half of the world's population lives in areas where the disease is prevalent and while it can be controlled by hygienic measures the difficulty in obtaining the cooperation of the masses retards the extermination of the disease.

Hexylresorcinol is effective against hookworm, ascariasis and *Trichuris trichiura*. The chemical is easy to take, has no bad after-effects and seems to be 100 per cent efficient. Dr. Leonard does not yet know whether the drug will be as effective against European hookworm nor whether it will be useful against other nematodes parasitic to man. Present results are based on the treatment of about 1500 persons in the United States. Other investigations are being conducted in Japan, China, the Philippine Islands, India, Siam, Egypt, the southern part of the United States, and Mexico.

Scientists have discovered that treatment by roentgen ray will cause the seed of a plant that blooms only annually to become a perennial.

Dr. Dudley A. Robnett, Columbia, for nine years associate professor of pathology in the University of Missouri School of Medicine, has been appointed associate professor of surgery.

The St. Louis Trudeau Club will meet Thursday, November 5, at 8:15 p. m., at the St. Louis Medical Society building. The following scientific papers will be read: "The Azygos Lobe of the Lung," by Dr. Alfred Goldman; "Intrathoracic Suppuration and Brain Abscess," illustrated with lantern slides, by Dr. Howard A. McCordock; "Oleothorax," by Dr. Harry C. Ballou. Members of the State Medical Association are invited to attend.

Members attending the annual convention of the International Association of Police Chiefs in St. Petersburg, Florida, October 13 adopted a resolution urging ratification by the United States of a treaty formulated in Geneva in July by thirty-six nations, to limit the manufacture of narcotics to the medical needs of the world. The association declared that illegal traffic in narcotic drugs is a problem too great for any single nation to control.

An unusually large increase in the number of cancer deaths among industrial policy-holders is reported by the Metropolitan Insurance Company for the first six months of 1931. A rise from 77 deaths per 100,000 population in the first half of 1930 to over 83 per 100,000 in the corresponding period of 1931 is the largest increase in deaths from this cause ever recorded for a one-year period, the company's statisticians state. While these figures apply only to the industrial policy-holders of the company, there is indication that the records for the entire population will show a similar large increase in numbers of cancer deaths during the year. The only exception to the general trend of increase was found in the Far West where the cancer death rate showed a decrease this year. The report explains that the influenza epidemic may have contributed to the increase in cancer deaths during the first three months of the year since deaths from all chronic diseases are usually more numerous during the influenza outbreaks. The increase in cancer deaths during the second quarter of 1931 cannot be explained on these grounds for the influenza outbreak was almost over by that time.



Because rats are potential carriers of bubonic plague most of the ports of the world require fumigation for rat destruction even when this procedure proves expensive or interferes with ship schedules.

In recognition of the work of Dr. Walter Reed and his associates in eradicating yellow fever from the North American continent, the United States Government on October 2 dispatched awards to the survivors of the volunteers in this work and to the heirs of others. The awards which were voted two years ago by Congress consisted of gold medals with the name of the recipient on one side and the words "Conquest of Yellow Fever" on the other. Congress also awarded pensions of \$125 a month to a number of the volunteers.

The following articles have been accepted for New and Non-official Remedies:

Abbott Laboratories

Neocinchophen-Abbott Tablets, 7½ grains

Lederle Laboratories, Inc.

Diphtheria Toxoid, two 1 c.c. syringe packages

Diphtheria Toxoid, two 1 c.c. vial packages

Diphtheria Toxoid, one syringe package

Diphtheria Toxoid, one vial package

Solution Liver Extract Parenteral (Lederle)

E. R. Squibb & Sons

Diphtheria Toxin for the Schick Test, Ready to Use Without Dilution

Scarlet Fever Streptococcus Toxin—Squibb, six 10 c.c. vial packages

Squibb Liquid Petrolatum with Agar and Phenolphthalein

A school for training young women to be efficient office secretaries to physicians has been started in St. Louis. The school is conducted by Miss Mary E. Holliday at 3720 Washington Boulevard. Miss Holliday is eminently fitted to impart this kind of information. She was secretary to Dr. George H. Jones during his eight years of service as secretary of the Missouri State Board of Health. After leaving the State Board of Health Miss Holliday was secretary to Dr. Hanna W. Loeb and is now secretary to Dr. S. B. Westlake. The course offered by Miss Holliday includes: conduct of the waiting room; greeting of patients and types of patients; telephone service to both doctor and patient; economy of the physician's time; clinical instruction in simple conditions; assistance to the physician during examination; care of office equipment; first-aid suggestions; medical terms and dictation of complete case histories in the various specialties; files; accounts, and collections.

The United States Civil Service Commission announces open competitive examinations for social worker (psychiatric), junior social worker, senior medical officer, medical officer and associate medical officer.

Applications must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than December 30, 1931, except that the Commission reserves the right to issue subsequent notice closing the receipt of applications before that date. The examinations are to fill vacancies in the Veterans' Administration, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Zone. Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience. Certain specified education and experience are required. Full information may be obtained from the secretary of the Civil Service Board of Examiners at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

Clinics were held in the St. Joseph's and the Missouri Methodist hospitals, St. Joseph, October 1 under the auspices of the St. Joseph Clinical Society as a feature of the twenty-fourth annual convention of the Missouri Tuberculosis Association which was held in St. Joseph October 1, 2 and 3. At the St. Joseph's Hospital clinics were conducted by Dr. F. X. Hartigan, John I. Byrne and F. Gregg Thompson. Pathological conferences were held on aortic heart diseases, Dr. L. H. Fuson; intraperitoneal transfusion in children, Dr. W. Roger Moore; genito-urinary surgery in children, Dr. Charles Greenberg; roentgen ray diagnosis, Dr. A. B. McGlothlan; sarcoma of the ribs, Dr. C. H. Wallace, Jr.

Operative clinics were conducted at the Missouri Methodist Hospital by Drs. H. K. Wallace, E. F. Cook, L. R. Forgrave, W. T. Elam, Paul Forgrave, Charles Greenberg and Floyd Spencer. Medical clinics at the Missouri Methodist Hospital were: Surgical and medical aspects of diabetes, Drs. H. S. Conrad and E. M. Shores; internal medicine, Dr. H. W. Carle; lues in obstetrics, Dr. W. T. Stacy; diabetes in children, Dr. C. A. Good; Neisserian infection of the kidney, Dr. Jenner G. Jones; intrathoracic goiter, Dr. J. H. Ryan; treatment of empyema in children, Dr. F. Gregg Thompson and Dr. W. Roger Moore; dislocated head of the femur with fractures, Dr. Charles Geiger.

A dinner for visiting physicians was given at the Hotel Robidoux following the clinics and Dr. J. A. Myers, Minneapolis, chief of the

medical staff of the Lymanhurst School for Tuberculous Children, delivered an address.

The committee in charge of the program was: Drs. Floyd Spencer, W. Roger Moore, Jenner G. Jones, F. Gregg Thompson and C. H. Wallace, Jr. Dr. Floyd Spencer is president of the St. Joseph Clinical Society.

An ordinance appropriating \$350,000 for the erection of the first unit of the proposed new St. Louis City Hospital No. 2 (for Negroes), was approved November 15 by the Citizens' Bond Issue Supervisory Committee. The first unit will comprise the service building containing the power plant, boilers, kitchen, laundry and dining rooms for the staff. This unit will be erected first because it is desirable to have steam heat available while the main building is being constructed. Plans call for the construction of the main hospital building consisting of a central structure and two wings, the service building, the nurses' home and superintendent's quarters, costing \$2,000,000. Since only \$1,200,000 is available at present, erection of one of the wings of the hospital building and the nurses' home and superintendent's quarters will be postponed indefinitely. The hospital eventually will care for 600 patients but under the temporary plan it will have a capacity for 300.

A fund was recently established in England as a tribute to Sir Ronald Ross for his revolutionizing discovery of the relation of the mosquito to the transmission of malaria to man and as a means of making his remaining years easy. As an army surgeon working in India, Sir Ronald proved that malaria is transmitted by the Anopheles mosquito and the knowledge obtained by his experiments made possible the development of tropical countries, increased shipping activities and widened the scope of industries dealing in such products as steel, oil, sugar, tobacco, coffee, rubber and tea. General Gorgas declared that without the knowledge of malaria and yellow fever prevention the Panama Canal could not have been constructed. Sir Ronald received the Nobel prize for medicine in 1902 and was made a K. C. B. in 1911. He is now in his seventy-fifth year and is crippled by paralysis but labors for his daily income. The fund, begun in England, is being carried on in this country as the Ross Award Fund of America and members of the medical profession are being asked to contribute as a demonstration of their appreciation of the self-sacrificing work of Sir Ronald. Dr. Robert L. Pitfield, 5211 Wayne Avenue, Germantown, Philadelphia, Pennsylvania, is secretary of the fund.

Dr. Max A. Goldstein, St. Louis, director of the Central Institute for the Deaf, has a collection of early devices for aiding the hearing of the deaf which he gathered while on a pleasure tour in Europe last summer. He is preparing the collection for permanent display at the institute believing that it is the only one of its kind. Most of the devices are of the pioneer type, the principle being that of a resonance box, but among the collection is the first electrical instrument which was developed in Vienna thirty-five years ago. Dr. Goldstein also obtained two additions to the institute's collection of books. One is a French work on phonetics published in 1598 having phonetic symbols paralleling the French text. The other purchase was an old copy of the French *Journal of Physics* containing an essay that won a prize of the St. Petersburg Academy of Sciences in 1790 and which was the first important article ever published on phonetics; it described and analyzed the artificial production of speech elements.

The medical and legal angles of the question of sterilizing a certain class of defectives were discussed at a luncheon meeting of the St. Louis Conference of Social Work in St. Louis October 19. Dr. Augustus Pohlman, St. Louis, professor of anatomy at the St. Louis University School of Medicine, discussed the subject from the medical viewpoint. He ranked proper environment as more effective in preventing the increase of the mental and moral defectives than sterilization and said, "Until science can determine whether heredity or environment is responsible for the mental and moral defectives society should not adopt a hysterical solution of the problem." Twenty-eight states have sterilization laws but they are practically inoperative in all of them except California where serious effort has been made to enforce that law. In that state more than 5000 persons have been sterilized since the law became effective in 1913. A bill was introduced in the fifty-sixth General Assembly of Missouri creating a eugenic board to decide on sexual sterilization of certain inmates of the five eleemosynary institutions but the bill failed of passage.

#### NURSES' PAY

A nurse who at 22 goes into private duty nursing with her youth and freshness is at the peak of her profession, in the opinion of Emily Bax, writing in *Hygeia* in an article, "Are Nurses Overpaid?" The nurse can earn as much at 22 as she can after many years' experience. Oftentimes she can earn more because doctors prefer the younger nurse who has been trained in the same routine as they and who has not forgotten the awe and reverence toward all doctors that she learned in the hospital.



## OBITUARY

### NORMAN BRUCE CARSON, M.D.

This summer Dr. Norman Bruce Carson died in his 87th year. He had been one of the leading surgeons of St. Louis and the Mississippi Valley for many years before he retired in 1923. His fine spirit and high personal character, his deep sympathy and understanding, his careful preparation for his life work, his painstaking skill, his fearless courage, made him an outstanding citizen and gave him his high place in his profession.

Dr. Carson came to St. Louis as a child from his birthplace in Pennsylvania and began his education in the schools of that city. He graduated in medicine in 1868 from the St. Louis Medical College and then studied abroad for two years after which he returned to his home to practice. He showed his interest in surgery from the start and early became associated with the St. Louis Mullanphy Hospital, then one of the chief hospitals for teaching medical students, where Dr. Elisha H. Gregory was surgeon-in-chief. Here he did his most notable work and on Dr. Gregory's retirement he succeeded as the chief surgeon to the hospital. Consistently doing good surgery, being technically most proficient, he got his greatest pleasure in attacking the serious problems in the most radical way, preparing himself in the laboratory and deadhouse for measures that were often entirely original and untried; and he was in these parts the first surgeon to try out some of the most advanced methods and was rewarded by just as remarkable cures. All this was done with modesty and propriety, as he never exploited himself or played to the gallery. He was sound in his judgment although often most radical in his methods, always ready to assume a risk when he saw a good possibility of a cure. His work in the operating room reflected the most advanced ideas in surgical technic, with the greatest regard for the tissues and using every physiologic and aseptic safeguard for the patient's recovery, making his clinic a leader in the community and a rendezvous for students and young surgeons who learned much from him and he enjoyed teaching them.

His connection with the St. Louis Medical College began in 1881 as an assistant in surgery and he advanced through all the grades until in 1899 he became the professor of clinical surgery and continued his work in the medical school until his retirement. In the period between the supplanting of the faculty of the old school in 1909 and the arrival of the new members of the faculty of Washington

University School of Medicine, Dr. Carson was asked to head up the department of surgery and he then devoted his whole time to teaching and supervised the surgical service at the Washington University Hospital on Jefferson and Lucas as well as the work at the Mullanphy. Students were assigned in sections to the Mullanphy Hospital until the Washington University group on Kingshighway was completed and then all regular teaching was discontinued by Dr. Carson and later he became professor emeritus.

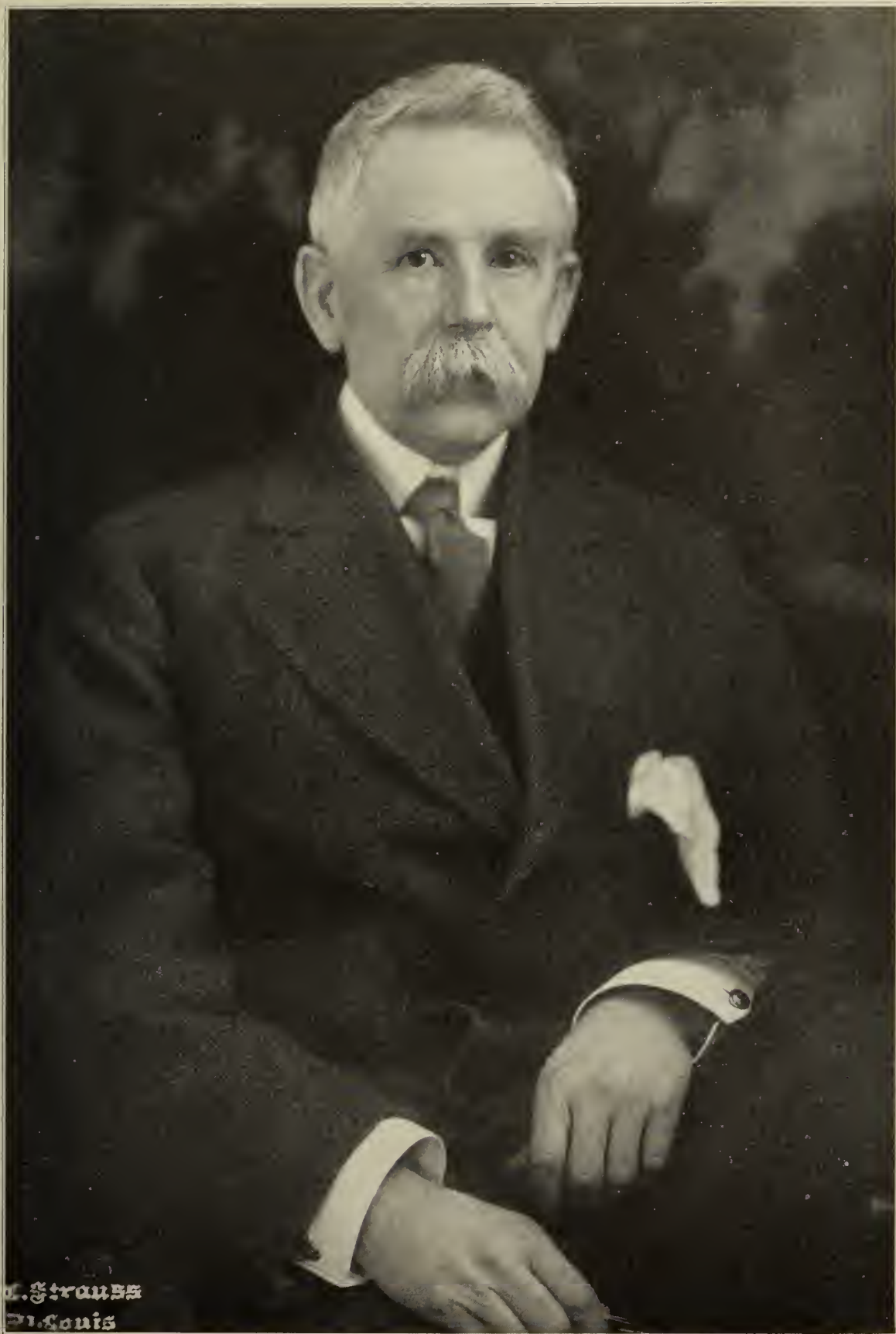
Dr. Carson's surgical career is clearly reflected in his writings which date back to 1879. He wrote with clarity and precision on many phases of surgery, from brain diseases to affections of the lower extremity, but he seemed to choose to discuss those newer methods of attacking fields that were until then untended. In chest and neural surgery and cancer of the esophagus and stomach he was one of the pioneers, and methods of his own devising were presented throughout his career, even up to shortly before he retired. He enjoyed these difficult problems and showed great ingenuity in solving them. Because of his eminence in the work he was chosen by Bryant and Buck to write the section on surgery of the thorax and spine in the "American Practice of Surgery" in 1909.

In 1896 Dr. Carson was elected a member of the American Surgical Association and continued active in the organization up to recent years. He was made vice president in 1903. In this society he presented many papers, but he also frequently appeared on the program of the local and state societies and because of his advanced ideas his presentations usually called forth a vigorous discussion.

Dr. Carson was one of the founders of the St. Louis Surgical Society and, succeeding Dr. Gregory, remained its president up to his death, although in later years he was not active because of his deafness. This early group numbered such names as Henry and Harvey Mudd, Gregory, Bryson, Prewitt, Lutz, Dorsett, McCandless, Glasgow, Tuholske, Tupper, in the active membership, and their monthly meetings were signalized by the fullest discussion of surgical cases and papers.

In 1902 the St. Louis Medical Society honored itself by choosing Dr. Carson for its president and his selection had a fine influence, particularly with the younger group of practitioners who delighted to see this office go to a distinguished member who not only had not sought it but who virtually had to be drafted.

Dr. Carson was prominent in the small group of Lutz, Grindon, Mudd and Ravold who started the St. Louis Medical Library, and



NORMAN BRUCE CARSON, M.D.  
Born 1844. Died 1931.



was its first president. For years it struggled on with aid from a very few until it became strong enough to walk alone, then it was turned over to the St. Louis Medical Society and is now splendid in its size, usefulness and housing.

Dr. Carson was also a member of the International Congress of Surgery, and was an original member of the Society of Thoracic Surgeons.

Dr. Carson was one of the original members of the staff of the Skin and Cancer Hospital, later renamed the Barnard. Here he set a high standard for cancer surgery.

In 1888 Miss Susan R. Glasgow and Dr. Carson were married. Mrs. Carson died three years ago. Professor William G. B. Carson of Washington University Department of English is the only child.

Dr. Carson was an ardent sportsman particularly enjoying outings with the rod or gun. As with his instruments for surgical operations so with tools for sport he was completely and abundantly equipped with the best that the makers could supply, and as with his professional aids so with sport accessories, he used them skillfully and with the greatest pleasure. He had hunted and fished all over this continent, big game and little, big fish and small, and always with keenness and skill. He often interested and amused visiting friends by telling of shooting snipe in a marsh at 14th and Olive or killing ducks on a pond at Grand near Morgan. He also frequently harked back to the time of the Civil War when as a youngster he had seen notable figures in that conflict, particularly those who visited his home where there was a strong Confederate sympathy. So, he could look back on changes in medicine and surgery. He started before bacteria were discovered but became their greatest foe as their significance became known. The abdomen and chest and skull were *terra incognita* to the surgeon until he had been in practice some time and he was amongst the first to explore them.

On his eightieth birthday Dr. Carson was tendered a dinner by the profession and citizens of St. Louis. At the time it was stated that "never have so many men of various callings come together in this city to honor so worthy a man."

In 1925 he was given the degree of Doctor of Science by Washington University.

Let this notice be finished by a quotation from Mr. Isaac Lionberger's address at Dr. Carson's 80th birthday dinner: "I know that he was the most precious product of nature; a soft, meek, kindly, patient, considerate, honorable gentleman, proud as Lucifer; upright as any judge and as brave in his uncompromising honesty; gallant not only in his treatment but

in his opinion of women; steadfast in his friendships and uncompromising in his hostilities. Born a gentleman, he has throughout his life been characterized by qualities which compel the deference of all who knew him."

M. B. C.

Mr. Lionberger's address in full follows:

I am so fond of the doctor that I am not going to trust to the capriciousness of my verbosity. I want to be brief and I want to leave nothing unsaid that I have to say of him. I beg of you to pardon me if part of the address that I shall make I read from a manuscript. It seemed to me unworthy that I should trust to the inspiration of the moment, forgetting all my feeling which is after all one of the most sacred things of my life. It is not very long, I can assure you at the outset.

The occasion is to me significant in the highest degree. Lawyers have given dinners to lawyers, doctors to doctors, men of affairs to captains of industry, preachers to preachers, and now and then all of these have united to dine and praise a man conspicuous for service to the state; but never have so many men of various callings come together in this city to do honor to so worthy a man. He is a doctor by profession, but he is far more. Others have spoken of his professional accomplishments; to me has been assigned a more congenial office, for I am permitted to speak of his private virtues.

The Doctor and I have walked together and talked together these many years. I judge of him by what I saw him do and heard him say. I have observed his behavior and prodded him with questions and explored his opinions. I knew what he praised and what he condemned. I have listened to the story of his life told by himself, and I know that he was that most precious product of nature—a soft, meek, kindly, patient, considerate, honorable gentleman, proud as Lucifer; upright as any judge and as brave in his uncompromising honesty; gallant not only in his treatment but in his opinions of women; steadfast in his friendships and uncompromising in his hostilities. Born a gentleman, he has throughout his life been characterized by qualities which compelled the deference of all who knew him. The more closely I observed him, the more I heard of him, the more I saw of him, the more I admired him.

What most pleased me in the Doctor was the traditions that clustered about him. He was of the old school—intolerant, uncompromising, high-minded. He looked up to no man and down upon none. I have teased him into exasperation, but never disturbed his dignity. I have taken a social glass with him and tempted him to indiscretion, but he has never lapsed from his character. The more he drank, the more polite he became, and the more indiscreet his revelations of himself, the more they did him honor. He has told me of his cases, yet what he learned professionally he guarded conscientiously. Surgery didn't harden him to human suffering. I have observed him almost to weep over a hopeless case, and once when the malady of a young woman seemed beyond his skill, he moped and sulked and would not talk; but when he divined the cause and rescued her with his knife, he rejoiced mightily and was gay as any boy. She was a pauper.

The Doctor was a very modest man. I have heard him tell, as among the discomforts of his profession, of a midnight summons while he was on a hunting trip, and of a long, hard drive through a wilderness to discover no more than that a patient who owed her life to his skill would not let her hus-

band sleep until he had brought with him her benefactor to receive her blessing and eat her supper.

I have heard of his successes and chagrins. In his youth he was associated with Hodgen. One day a country woman came into the office suffering acutely from an abdominal tumor. Hodgen pronounced it incurable, Dr. Carson thought otherwise and begged permission to operate. As death seemed certain and the woman's suffering was constant, she and her husband, after a tearful conference, consented. He saved her life, and so won his distinction.

Perhaps I am at liberty to add what follows: Dr. Carson attributed the success of his operation to the cleanliness with which it was performed. The older doctors scouted such a suggestion, and one of them, suspecting what he heard, insisted upon exploring a case and by his soiled fingers killed a woman from whom a tumor had been removed.

Dr. Carson, as I have said, is a product of tradition. Born in the 40's he lived before, during and after the war, and so was fashioned by the old French-Southern influence, somewhat modified by what followed. He cherished his prejudices—even his animosities, and almost persuaded me that the gentleman's character must be intolerant in order that it might survive.

I do not mean to say that the Doctor is an obstinate man—very far from it. Notwithstanding his sturdy self-respect, he is openminded in a most extraordinary way. He even invites instruction, yet he who dares tell him always feels a diffidence in judgment, a reluctance to exaggerate, a wish to be exact, which I attribute to his psychic influence.

All my life I have sought the companionship of old men and wiser men and I have been intimate with very many, yet I think that none of them was more useful to me than this kindly simple-hearted companion of a morning's walk who knew less, far less of the affairs and men of the world than I. I had been brought up in a rougher school than the hospital ward or chambers of invalids; and it refined me to associate with him. I have known many good men, but none to compare with him in those delicate, ethereal qualities which lend so sweet a fragrance to the character.

I have known Dr. Carson not only as a friend but as his patient, and can testify to his skill as well as to his tenderness. My wounds healed instantly and left no scars.

His personality was influential not only with his friends and patients but with all who encountered him. I have heard the lawyers say that he was the best witness in the city, his character inspired confidence and won verdicts from the juries. The judges trusted him. He affected nothing, he pretended to nothing, he extenuated nothing, and by his candor always baffled cross examination.

Mr. Bixby and I have heard from his lips an account of the development of medical science in this city and of the men who contributed to it. His recollections of Pope and Hodgen and Mudd and of the host of surgeons and physicians who practiced here between 1870 and 1920 would constitute a precious memorial of men worth remembering. He witnessed the birth of the new surgery, of Listerism and Pasteurism, and told us of their amazing consequences. We tried hard to induce him to write out these recollections, but his hand refused the office and we could not prevail upon him to use a stenographer. Your periodicals I am informed contain various contributions made by him in his prime, and these are still consulted. I know that he taught

for many years in the medical school, was head of a hospital and was intimate with all those who for half a century helped to establish the traditions of the great school which now adorns and distinguishes this city. Always, under all circumstances, in every relation, his character was influential; a character so high and yet so firm, so resolute and yet so gentle, so cautious and yet so brave, so considerate and yet so constant that none who knew him failed to yield to him that affection and homage which are the best fruits of a noble life.

Having now flattered him, as a friend has a right to do, permit me to reveal to you some of his weaknesses, his deplorable weaknesses, which reconciled me to my own inferiority. The Doctor is full of reminiscences; it is dangerous to let them loose. He is impetuous. In his youth he knocked down a man at the old Home Circle. "What did he do?" I asked. "I did not inquire, sir; a lady resented his conduct and I struck him." He was fond of fishing and hunting and cherished his rods and rifles, and I have been forced to listen while he told me how he spliced a splint with more pride than ever he described an operation. He did not know how to invest his money. Every vagrant peddler of doubtful character beguiled from him his fees. He hated specialists and could not be relied upon in consultation to confirm a foolish diagnosis. He would not trade business for business. I have known him to denounce even a successful quack. He is foolish enough to scorn commercialism and prefers his art to his income. He hates policemen, and new women, and prohibition, and does not trust the politicians. He is credulous in an extraordinary degree and believes in war to end war, and Mr. Wilson and the League of Nations. On the other hand, he refuses to trust the preacher to help him get to heaven. He believes in immortality, but thinks it a gift gratuitous. He is a strange man, this doctor of ours.

I have known few like him. Modesty, sincerity, courtesy and dignity have not been common virtues in my time. One does not often encounter the grand manner. His type is fast vanishing. I have deemed it an honor to be admitted to his friendship. I like to be with him. He never offends me by condescension. He affects nothing. I even think I understand him. I do homage to such a man, and rejoice in this opportunity to tell you who have known him so much more intimately, that many others share in your regard for him.

To what extent he owes his character to your noble profession I cannot tell, yet when I think of him I am minded always of the Hippocratic Oath of antiquity:

"I swear by all the gods of healing that I will fulfill this oath and covenant to the best of my ability; I will live for the benefit of my patients, and not for their injury, nor for any unlawful purpose. I will not give a deadly drug to any one, though it be asked of me, nor will I lead the way in such counsels, and I will not give a woman pessary to procure abortion. But I will keep my life and my art in purity and holiness. Whatsoever house I enter I will enter for the benefit of the sick, refraining from all corruption of male or female, bond or free. Whatsoever things I see or hear concerning the lives of men in my attendance upon the sick or apart from it, which ought not be blabbed abroad, I will not speak of, counting such things to be religious secrets.

"If I fulfill this Oath, be it mine to enjoy life and art alike with good repute for all time to come; but if I violate this Oath, may the contrary befall me."



Dr. Carson kept this oath, and to him I am tempted to say what Orlando said to Adam:

"O good old man, how well in thee appears  
The constant service of the antique world,  
When service sweat for duty, not for meed!  
Thou art not for the fashions of these times,  
Where none will sweat but for promotion. . . ."

I am glad you did not postpone this ceremony until after his death, when he could not hear you. Fame is but an arrangement of letters in a book or on a tomb. To the dead it is as harmless as the breath of a rose to a distant passenger. The homage we now render the Doctor will sweeten the years that lie ahead of him.

I am nearly done. I hope that after my death when men shall speak of me and have a motive to forget my infirmities, some one may be found to say of me one or two of the things that you and many others think and know and say of him while he lives. I wish that during my life I had done as little to regret and as much to be proud of as this humble gentleman of eighty summers.

And now, in closing, let me give you the jottings of a man who is almost as old, I am only 70 to be sure. The girls in our time, as the Doctor and I have many times discussed over a bottle, were nice girls, they were sentimental, they were charming, they were flattering, they were caressing, they were flirting, they were literary, they were prudish. These qualities are obsolete, gentlemen, many of them. The young men, as we called them, were gallant, or intellectual, or promising, or industrious, or good, or dissipated, and they wore beaver hats and frock coats and stocks and tight pants and look very funny indeed to us now. The ladies wore hoop skirts and shawls and flounces and lace caps, wide sleeves, and they had feet, but nothing else, and they had dignity. There were parties, sociables, strawberry festivals, river excursions, picnics, buggy rides, front steps, Sunday teas, flattering proposals, gallantry, shopping on Market street between 3d and 4th, promenade on 4th, ice cream parlors, church circles, agricultural fairs, booths, hospitality and visiting. The river front was a wonderful place, teeming with men and activity, steamers, no railroads, commission merchants and saloons and bargaining, sharp practices, and money was 10 per cent, universal use of endorsements and merchant princes as we called them in those days. And the town was beautiful and muddy and had shade trees and stately mansions, and single track roads. Eighth street was the western suburb. There was good hunting, prairie chickens, snipe, ducks, venison, chickens two for a quarter; slaves, niggers, mummies, the bellman, "Lost child," the sportless Sunday. Doctoring was very different. There were blue mass pills, castor oil, licorice powder, sassafras tea, sulphur and molasses and tonics and sore throats and bacon, red flannel and health, salivating, bleeding, cupping, starving a fever and feeding a cold, cholera, small-pox, no trained nurses. Nothing but mutual help. The family physician, no hospitals, the tin bath-tub, bath around once a week whether you needed it or not, gentlemen, no sanatoria, no vacations, no playgrounds, no gymnasia, cleft palates, hare lips, diseased tonsils, mumps, measles, scarlatina, no quarantine, no disinfection, no appendicitis, no appendix, no twilight sleep, no impure milk. And no railroads, nor automobiles, nor telephones, nor flappers, nor new women, nor right to live one's own life, nor politicians, nor clear water, nor prohibition, nor chaperones, nor "drives," nor syndicated charity, nor

clubs, nor golf, nor tennis, nor baseball, nor football, nor swimming pools, nor parks, nor movies. There was no anything then, gentlemen. It is a far cry to the Doctor's youth.

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71. Enlarged Clitoris; Rudimentary Vagina, *St. Louis Courier Med.* **3**:200, 1880.
72. A New Type of Fever, *St. Louis Courier Med.* **3**:197, 1880.
73. Obstruction of the Bowels, *Cincinnati Lancet & Clinic (New Series)* **4**:269, 1880.
74. Syphilitic Aphasia, *St. Louis Courier Med.* **4**:165, 1880.
75. Carson, N. B., and Glasgow, Frank A.: Incarcerated Intestine, *St. Louis Courier Med.* **4**:77, 1880.
76. Symptoms of Hip Disease Caused by Adherent Prepuce, *St. Louis Courier Med.* **4**:469, 1880.
77. Cancer of the Liver (with Discussion), *St. Louis Courier Med.* **2**:178, 1879.
78. Cancer of Pyloric Extremity of Stomach, *St. Louis Courier Med.* **2**:177, 1879.
79. Syphilitic Lesions of the Arteries (with Discussion), *St. Louis Courier Med.* **2**:180, 1879.

### BYRON THOMAS QUIGLEY, M.D.

Dr. Byron T. Quigley, St. Joseph, a graduate of Ensworth Medical College, St. Joseph, 1891, died at his home in St. Joseph September 30 following an illness of two years. He was 62 years old.

Dr. Quigley was born near Albany, Missouri, and received his preliminary education in the schools in Albany. He taught school in Gentry County for a short time before he be-

gan the study of medicine. He established his practice in Darlington and later moved to Mound City. At the outbreak of the World War he was appointed a captain in the Medical Corps and was stationed in Virginia. After being discharged from military service he located in St. Joseph where he was in active practice until his illness required his retirement a year ago.

Dr. Quigley was a loyal supporter of organized medicine. He was a member of the Holt County Medical Society transferring his membership to Buchanan County when he located in St. Joseph. He was an alternate delegate to the State Session in 1924, 1929 and 1930. He was vice president of the Buchanan County Medical Society in 1926 and on March 26, 1931, he was elected an Honor Member of that Society. He was a Fellow of the American Medical Association.

His friends were many both within and without the profession and his death is a distinct loss to the medical profession and the community.

## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.

Miller County Medical Society, December 27, 1930.

Chariton County Medical Society, December 30, 1930.

Macon County Medical Society, February 19, 1931.

Pulaski County Medical Society, March 11, 1931.

Dent County Medical Society, April 15, 1931.

Mississippi County Medical Society, April 25, 1931.

Atchison County Medical Society, May 4, 1931.

Barry County Medical Society, May 15, 1931.

Lafayette County Medical Society, May 23, 1931.

Putnam County Medical Society, July 7, 1931.

Schuyler County Medical Society, August 15, 1931.

Reynolds County Medical Society, October 15, 1931.



**ADAIR COUNTY MEDICAL SOCIETY**

The regular monthly meeting of the Adair County Medical Society was held in the Grim-Smith Hospital and Clinic, Kirksville, Thursday, October 1. The meeting was called to order by the president, Dr. J. W. Martin, Kirksville, at 8:00 p. m. The minutes of the previous meeting were read and approved.

A general expression of sympathy was extended to Dr. E. C. Grim who was unable to be present on account of illness.

The application of Dr. A. F. Miller, of the health department of the Northeast Missouri State Teachers College, Kirksville, was read for the third time. It was approved by the board of censors and Dr. Miller was elected a member.

Dr. J. S. Gashwiler, Novinger, asked for cooperation in examining about 500 school children in District No. 1. Dr. E. Sanborn Smith, Kirksville, volunteered to bring a nurse and assist in the examinations. The State Association has agreed to furnish one examiner. In this way the work can be completed in one day's time.

A suggestion was made that we have an illustrated lecture at our meeting the first Thursday in November to be held in the health department of the Teachers College, Kirksville. On motion of the president, seconded by Dr. E. Sanborn Smith, Dr. Spencer L. Freeman was instructed to make arrangements for the pictures.

Dr. J. S. Gashwiler, Novinger, asked permission of the Society to have some selected articles from the "Medical Quarterly" published in his home paper. Permission was granted Dr. Gashwiler to have these articles reprinted.

Dr. E. Sanborn Smith, Kirksville, reported a case of narcolepsy, a disease of the nervous system. The patient was a girl, aged 15, from Putnam County. She was benefited by regular doses of ephedrine. Only a few cases of this rare disease, a ductless gland disorder, have been reported. A general discussion followed. Diseases of calcium imbalance and the best method of treatment and form of calcium to prescribe were also discussed.

Several of the physicians in this territory have been incapacitated of late due to physical ills. An increase in attendance is anticipated as new roads enable the members to cover more territory and reach more distant fields of endeavor.

The meeting adjourned at 10:00 p. m. with a good spirit of organized medicine evidenced and hopes for a large meeting in November.

J. S. GASHWILER, M.D., Secretary.

**BATES COUNTY MEDICAL SOCIETY**

The Bates County Medical Society met in regular session in the courthouse at Butler, September 17. The meeting was called to order by the president, Dr. C. A. Lusk, Butler, with the following members present: Drs. E. N. Chastain, R. E. Crabtree and C. W. Luter, of Butler; Claude J. Allen and W. H. Allen, of Rich Hill; E. E. Robinson, Adrian; H. A. Rhoades, Foster. Drs. R. C. Davis, F. C. Helwig and Harold P. Kuhn, of Kansas City, were guests and presented the scientific program.

Dr. H. A. Rhoades, Foster, was elected temporary secretary in the absence of Dr. George H. Thiele, Butler, who is in Philadelphia taking postgraduate work at the University of Pennsylvania.

The application of Dr. T. J. Halsey, Butler, was read and approved and Dr. Halsey was elected to membership.

The Society voted to unite with the Vernon-Cedar County Medical Society subject to their approval.

The Kansas City guests presented a symposium on goiter.

Dr. R. C. Davis spoke on "Goiter of the Heart."

Dr. Harold P. Kuhn read an interesting paper on "Surgery of Goiter."

Dr. F. C. Helwig gave a lecture on "Pathology of Goiter."

This symposium was very instructive and every member present enjoyed the program.

H. A. RHOADES, M.D., Secretary.

**CALLAWAY COUNTY MEDICAL SOCIETY**

At the regular meeting of the Callaway County Medical Society held at Fulton, October 8, the following officers were elected for the year 1932: President, Dr. C. H. Christian, Fulton (reelected); vice president, Dr. E. McD. Rusk, New Bloomfield; secretary-treasurer, Dr. A. D. Ferguson, Fulton (reelected). The election of a delegate and alternate delegate to the State Meeting was deferred.

A. D. FERGUSON, M.D., Secretary.

**FIVE-COUNTY MEDICAL SOCIETY**

The quarterly meeting of the Five-County Medical Group of Southeast Missouri, consisting of Butler, Dunklin, New Madrid, Pemiscot and Stoddard counties, was held at Essex, September 22, as guests of the Stoddard County Medical Society. A most excellent banquet was served by the ladies of Essex in the basement of the high school. Rev. W. E. Forsyth, of Essex, gave the invocation and later a very pleasing talk concerning professional men in which he praised the medical profession, considering their life work on a par with teachers and the ministry. Drs. Paul Baldwin, Kennett; M. L. Cone, Campbell; W. J. Hux, Essex, and E. J. Nienstedt, Blodgett, gave short after-dinner talks that were to the point and highly entertaining.

Through the courtesy of the Postgraduate Committee of the State Association we had as our guests Drs. Charles H. Neilson and Charles H. Eyer mann, of St. Louis.

Dr. Neilson, who is chairman of the Postgraduate Committee, gave us some instructive ideas and suggestions concerning postgraduate meetings such as we have been holding. He mentioned the Five-County Group as one of the liveliest groups in Missouri and encouraged us in our efforts. He brought out the great value of such meetings; first, a much needed change for the physician from his daily routine; second, the value of meeting one's fellow practitioners and learning to know them, and third, keeping abreast of new methods and ideas in modern medicine.

After the banquet we adjourned to the Methodist Church where Dr. J. P. Brandon, Essex, president of the Stoddard County Society, called the meeting to order.

Dr. Charles H. Neilson presented his subject, "Goiter," in a forceful and instructive way. His emphasis on similarity of several other conditions brought to our minds the necessity of careful study of our patients presenting nervous manifestations, loss of weight, rapid hearts, and general weakness and fatigue. Inquiry into the home surroundings, type of work done, and the kind and amount of food eaten was pointed out as most important. Dr. Neilson warned us against calling these conditions "nervous breakdowns" because nerves do not break down. The emotions are disturbed so proper study

of the cause that might aggravate these conditions is important in the general care of the patient. He emphasized the thought that such a case was a one-man job, requiring long study, patience, care and deep interest. Grouchiness on the part of the physician is detrimental to the patient and of no avail to himself. In the diagnosis, he pointed out that goiter with all its cardinal symptoms is easy to diagnose but goiter on the borderline is most difficult and often impossible to diagnose. Tuberculosis, focal infections, vasocardiac neuroses, and some other conditions with loss of weight and rapid heart, take hard study to differentiate. Medical treatment can do much for the patient preoperatively and often carries him over for a long period of time, but operation is usually the only cure. Other types of goiter were discussed in some detail. Dr. Neilson covered an enormous field in the short space of one hour. The Five-County Group considers this lecture one of the most valuable heard during our series.

Dr. Charles H. Eyermann followed with a wonderful lecture on "Allergy." He gave us a clearer understanding of what the term meant than we had heretofore been able to comprehend. Etiologically, he emphasized the relationship of heredity, certain foods and the pollens of certain plants. According to the essayist, a careful history will more often point out the causative agent than any other one method. The season, a knowledge of plants and their pollen time in the particular community are most important. The enumeration of the foods that most commonly cause allergy, in the order of frequency, as well as information on the hair and dandruff of certain animals, was knowledge of first importance to our practitioners.

The fact that a knowledge of allergy is to most of our practitioners quite infantile made this subject one of great eagerness to feed our hunger. The common occurrence in our section of such conditions made the subject very vital. Dr. Eyermann's masterful presentation of this subject made it one of the most helpful in our course. Questions were shot to the left of him, to the right of him, from above and below, and from in front and behind him. He was quick to give most satisfactory answers in his modest and cheerful way.

The meeting came to a close with many grateful remarks from the members for the useful pointers which these two speakers gave us. The next meeting will be held in Pemiscot County the first Tuesday in December with that organization as host. The place of meeting and the program will be announced at a later date.

The attendance at this meeting was for some reason the smallest since the beginning of the post-graduate series. Probably this was due to the hot weather or to the annual meeting of the Southeast Missouri Medical Association at Campbell, October 6 and 7, which of course draws many because of the old traditional love for that society.

Besides the guests there were present the following: Rev. W. E. Forsyth, Drs. W. J. Hux and Jesse Vaughn, of Essex; S. E. Mitchell, G. T. Van Cleve and J. D. Van Cleve, of Malden; J. Lee Harwell, B. J. Macauley and A. R. Rowe, of Poplar Bluff; Edward Ford and E. A. P. Briney, of Bloomfield; D. A. Hoxie and Frank La Rue, and J. Will Smith, D.D.S., of Dexter; Paul Baldwin, Kennett; A. H. Marshall, Charleston; J. W. Rhodes, Hayti; A. Glenn Davis, Senath; M. L. Cone, Campbell; C. D. Harris, Morley; Geo. W. Husted, Parma; E. J. Nienstedt, Blodgett; S. T. Smith, Holcomb.

JOHN D. VAN CLEVE, M.D.,  
Corresponding Secretary.

## LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society held its regular monthly meeting at Lexington, September 22, with the following present: Drs. T. R. Butler, J. Q. Cope, G. W. Fredendall, B. T. Payne and C. T. Ryland, of Lexington; W. A. Braecklein, J. De Voine Guyot and W. E. Koppenbrink, of Higginsville; E. L. Johnston, Concordia; Odus Liston, Oak Grove; Francis W. Mann, Wellington; W. E. Martin, Odessa.

Miss Ethlyn Cockrell, Red Cross nurse for Lafayette County, briefly outlined her work for the year.

Miss Alberta Chase, executive secretary of the Missouri Society for Crippled Children, spoke on plans for the crippled children's clinic to be held at Lexington in November.

A paper on "Tuberculous Meningitis" was read by Dr. J. De Voine Guyot, Higginsville.

J. DE VOINE GUYOT, M.D., Secretary.

## NODAWAY COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Society was held in the first-floor lecture room of the St. Francis Hospital, Maryville, Friday, October 9. The president, Dr. K. C. Cummins, Maryville, called the meeting to order at 7:45 p. m. Only a small number of members were in attendance; many of the physicians of the county were attending the Kansas City Fall Clinical Conference or the World Series or a local football game. Those present were: Drs. C. T. Bell, K. C. Cummins, L. E. Dean and C. V. Martin, of Maryville; W. M. Hindman, Burlington Junction; Chas. D. Humbert, Barnard. Dr. Carl H. B. Schutz, Kansas City, several Sisters of the hospital staff, and Drs. E. L. Enis, Jesse Miller and H. L. Stinson, of Maryville; and Dr. J. Farrell Webb, Kansas City, dentists, were the invited guests.

The secretary announced the removal of Dr. Claude P. Fryer, Maryville, to Hiawatha, Brown County, Kansas, as of October 8. Dr. Fryer accepted the appointment of field agent of the United States Public Health Service and health officer of Brown County.

Through the courtesy of the Postgraduate Committee of the State Association Dr. Carl H. B. Schutz and G. F. Webb, D.D.S., of Kansas City, furnished the scientific program. Dr. Webb delivered a lecture on "Pulp Stones in Their Relationship to Vague Pains About the Head and Face." He contends that pulp stones are in general calcium deposits or concretions laid down as the result of injury or irritative processes. He cited case reports from his own practice to show that their formation may be very rapid and that large stones may be developed within a few weeks or months. He stated that the pulp tissues "distal" to the point where a stone forms usually become gangrenous and die, with the formation of a tiny gas bubble, and gives this as the explanation for the exaggerated sensitivity to quick changes in temperature which teeth containing pulp stones show. The low frontal and low occipital head pains of persons whose teeth contain pulp stones are a "reflex-arc" nervous phenomenon. It is quite common to find that several teeth in a given individual may each contain pulp stones, and the occurrence of pulp stones in teeth adjacent to teeth which have been devitalized is quite common. Most, but not all, pulp stones are readily revealed by the roentgen ray. The essayist presented an unusually large pulp stone which he had removed two days ago from a female patient aged 24, with the following history: Six months ago her



face had struck the dashboard of a car in an automobile collision and both lower central incisors were broken off. There was also some injury to the upper incisors. In the past two weeks she had developed the head pains which Doctor Webb had come to associate with pulp stone, and the roentgen ray had shown this stone in the upper right central incisor. The tooth was accordingly extracted with complete cessation of the head pains in a few hours.

Doctor Webb's remarks were illustrated with free-hand blackboard sketches arousing much interest. He presented a moving picture film of his own manufacture showing the results, on injected rabbits, of cultures from devitalized and abscessed teeth in patients suffering from Parkinson's disease and from the various phases of the rheumatic syndrome. The rabbits, which had received these cultures intravenously and into the cerebrum and the head of the tibia, had developed some striking symptoms analogous to those of the patients from which the cultures had been secured. Doctor Webb's remarkable little "movie" showed beautifully the result of much study and labor, and gave a very impressive lesson of the dangers of apical abscesses.

Dr. H. L. Stinson, Maryville, also exhibited a small pulp stone extracted that day from a patient who gave a history similar to that of Doctor Webb's patient.

Dr. Schutz gave a well prepared paper on "Dermoid Cysts." He reviewed the pathology of these cysts and the types into which they are divided, and gave especial attention to teratoma of the ovary. He presented four preserved specimens of dermoid cysts which were carefully examined. Much interest was shown in Dr. Schutz' paper and like the preceding one it was discussed by nearly every member present.

Dr. Chas. D. Humberd, Barnard, moved that the Society adjourn. The motion was seconded by Dr. W. M. Hindman, Burlington Junction, and carried at 10:00 p. m.

CHAS. D. HUMBERD, M.D., Secretary.

### ST. FRANCOIS-IRON-MADISON COUNTY MEDICAL SOCIETY

The St. Francois-Iron-Madison County Medical Society met June 30 as guests of the Fredericktown members. Dinner was served in the basement of the First Christian Church.

An honor guest of the Society was Dr. George W. Vinyard, Jackson, who has practiced medicine for more than fifty years. Dr. Vinyard was introduced by Dr. W. H. Barron, Fredericktown, and responded with a brief address. His anecdotes and witty remarks were greatly enjoyed. The guest speakers of the evening were Drs. O. P. J. Falk and James B. Costen, of St. Louis, who were sent to us by the Postgraduate Committee of the State Association.

Dr. Falk gave a lecture on "The Recent Advances in the Diagnosis and Treatment of Heart Disease." He particularly stressed the importance of including the etiological factors in the diagnosis of any heart condition. The outline of treatment was well detailed and is one method that can be carried out in the home.

Dr. Costen spoke on "The Management of Acute Otitis and Its Complications." The indications for incising the drum were clearly presented. The importance of after-treatment of the incision was stressed and the indications for operation in mastoid infection were outlined.

Both of these lectures were instructive and were freely discussed.

### Meeting of September 15

The Society met September 15 at State Hospital No. 4, Farmington. The scientific program was furnished by Drs. H. I. Spector and D. L. Sexton, of St. Louis, who came through the courtesy of the Postgraduate Committee of the State Association.

A clearly outlined illustrated lecture on "Lung Abscess" was given by Dr. Spector. His remarks on the differential diagnosis of this condition were especially good. The outline of conservative treatment was practical and from the statistics given us it is very valuable.

Dr. Sexton read an interesting paper on "The Evaluation of Present Day Endocrine Therapy." In this address he devoted most of his time to a discussion of the newer products and gave a clear conception of their value in common use.

These talks were of great practical value. The subjects were fully discussed and the lecturers were called upon to answer a number of questions.

VAN W. TAYLOR, M.D., Secretary.

### ST. LOUIS COUNTY MEDICAL SOCIETY

Through the hospitality of Dr. Eugene A. Scharff, superintendent of the new St. Louis County Hospital, Clayton, the Society met in the auditorium of the hospital, Wednesday afternoon, September 9. There were thirty-six members and ten visitors present. The guest speaker of the afternoon was Dr. Jabez N. Jackson, Kansas City, who was present through the courtesy of the Postgraduate Committee of the State Association.

Dr. S. Joseph Magidson, University City, was elected to membership by transfer from the St. Louis Medical Society.

Dr. James M. Black, Kansas City, was elected a corresponding member.

Dr. Jackson addressed the members on "Physiological Considerations in Abdominal Surgery." In his lecture he brought out many interesting and enlightening features on abdominal surgery.

The subject was discussed at length by Drs. J. A. Armstrong, E. O. Breckenridge, R. E. Gaston, D. Henry Hanson, J. D. Hayward, C. C. Irick and Dr. Canepa.

Dr. B. Kurt Stumberg, St. Charles, Councilor for the Eighth District, extended an invitation to the Society to attend the Eighth Councilor District meeting, the date to be announced later.

Dr. Scharff, superintendent of the hospital, offered to cooperate with the Society at any time and expressed his good wishes to the Society.

FENTON J. PETERSEN, M.D., Secretary.

## WOMAN'S AUXILIARY

### Officers 1931-1932

President, Mrs. U. J. Busiek, Springfield.

President-Elect, Mrs. David S. Long, Harrisonville.

1st Vice President, Mrs. Ralph W. Holbrook, Kansas City.

2nd Vice President, Mrs. R. S. Kieffer, St. Louis.

3rd Vice President, Mrs. H. M. Grace, Chillicothe.

4th Vice President, Mrs. W. T. Martin, Albany.

Corresponding Secretary, Mrs. F. T. H'Doubler, Springfield.

Recording Secretary, Mrs. J. A. Chenoweth, Joplin.

Treasurer, Mrs. L. S. James, Blackburn.

Auditor, Mrs. J. J. Gaines, Excelsior Springs.

Directors (2 years): Mrs. George Ruddell, St. Louis; Mrs. G. B. Schulz, Cape Girardeau; Mrs. S. P. Howard, Jefferson City; Mrs. H. W. Carle, St. Joseph; Mrs. Calloway, Nevada. (1 year): Mrs. C. B. Summers, Kansas City; Mrs. J. D. Guyot, Higginsville; Mrs. D. A. Barnhart, Huntsville; Mrs. John A. Powers, Warrensburg; Mrs. P. L. Patrick, Marcelline.

### GENTRY COUNTY AUXILIARY

The Gentry County Auxiliary and the Gentry County Medical Society held a joint meeting at Rainbow Park with the doctors and their wives from Worth County as guests. Mrs. J. T. Bickel was hostess. In answering the roll call every member gave a suggestion as to what the Auxiliary could do to help Gentry County along the lines of health.

Mrs. W. T. Martin, Albany, president, read the Oath of Hippocrates.

"Dr. Carrel's Great Work" was reviewed by Mrs. J. N. Barger, Albany.

The meeting closed with a picnic supper.

### BUCHANAN COUNTY AUXILIARY

The Buchanan County Auxiliary was entertained at tea at the home of Mrs. A. B. McGlothlan, St. Joseph, during the recent session of the Missouri Tuberculosis Association. The wives of the visiting physicians are guests of honor.

Preceding the tea there was a short business meeting. The president, Mrs. H. W. Carle, St. Joseph, appointed the following committees: Public relations, Mrs. Caryl Potter, Mrs. W. T. Stacy and Mrs. G. D. Wright, of St. Joseph; Program, Mrs. Daniel Morton, Mrs. Perry P. Fulkerson, Mrs. L. P. Forgrave and Mrs. A. J. Smith, of St. Joseph; finance, Mrs. W. C. Proud, Mrs. H. S. Conrad and Mrs. Forest Thomas, of St. Joseph; organization, Mrs. H. De Lamater, Mrs. L. S. Long and Mrs. L. H. Fuson, of St. Joseph; publicity, Mrs. C. H. Werner, Mrs. E. M. Shores and Mrs. W. L. Kenney, of St. Joseph; Hygeia, Mrs. H. W. Carle, Mrs. Emmett F. Cook and Mrs. J. M. Bell, of St. Joseph.

Mrs. A. B. McGlothlan, St. Joseph, president of the Woman's Auxiliary to the American Medical Association, and a member of the White House Conference, attended the meeting of the Tuberculosis Association and gave her first report, publicly, of the White House Conference. She also presided at several meetings and luncheons.

### GREENE COUNTY AUXILIARY

The Greene County Auxiliary held its September meeting at the home of Mrs. John W. Williams, Jr., Springfield. The meeting was called to order by the president, Mrs. James P. McCann, Springfield.

Mrs. Walter S. Sewell, Springfield, was in charge of the program and called upon each member to respond to the question, "How I Spent my Summer."

Refreshments were served to nineteen members.

MRS. C. B. ELKINS.

### RANDOLPH-MONROE AUXILIARY

The Randolph-Monroe County Auxiliary held a regular meeting in September. The following subjects were chosen for round-table discussion: Should There be a Child Welfare Secretary in the President's Cabinet; Leprosy; Review of the Book "Lonesome River"; The Public Health Nurse; Your Heart and How to Take Care of It; Mental Hy-

giene; Communicable Diseases; Nationally Known Missourians; Nationally Known Missouri Physicians; Diet Problems; Doctor's Wives.

The Auxiliary had one picnic during the summer which was the annual outing for the members and their families. We will have our annual banquet this winter. Our meetings have been well attended and most instructive and we have enjoyed a most pleasant social contact.

MRS. THOMAS S. FLEMING.

### TWENTY-SIXTH COUNCILOR DISTRICT AUXILIARY

A new Auxiliary has been organized through the efforts of our President, Mrs. U. J. Busick, Springfield, and the corresponding secretary, Mrs. F. T. H'Doubler. It will be known as the Woman's Auxiliary to the Twenty-Sixth Councilor District Society and is composed of the counties of Crawford, Dent, Laclede and Pulaski. On account of the small population of these counties it is impossible for each county to have its own organization. The meeting took place at Rolla and the following officers were elected: District councilor, Mrs. W. H. Breuer, St. James; vice district councilor, Mrs. G. W. Horrom, Rolla; secretary-treasurer, Mrs. J. C. Scott, Lebanon; Hygeia chairman, Mrs. C. Mallette, Crocker; councilor for Phelps County, Mrs. W. S. Smith, Rolla; councilor for Pulaski County, Mrs. A. J. Crider, Dixon; councilor for Dent County, Mrs. Lloyd H. Hunt, Salem; councilor for Crawford County, Mrs. G. G. A. Herzog, Cuba; councilor for Laclede County, Mrs. J. C. Scott, Lebanon. Other members are Mrs. R. E. Breuer, Newburg; Mrs. W. J. Durant and Mrs. S. L. Mitchell, of Rolla; Mrs. A. E. Oliver, Richland.

MRS. W. M. BICKFORD.

### LAFAYETTE COUNTY AUXILIARY

The Woman's Auxiliary to the Lafayette County Medical Society met at the home of Mrs. B. T. Payne, Lexington, Tuesday afternoon, September 22. Miss Alberta Chase, executive secretary of the Missouri Society for Crippled Children, and Miss Ethlyn Cockrell, Red Cross nurse for Lafayette County, were guests.

### NEWS NOTES

Mrs. Ralph Holbrook, Kansas City, president of the Auxiliary to the Jackson County Medical Society, entertained St. Joseph members of the Auxiliary to the Buchanan County Medical Society at a luncheon at the Art Institute in Kansas City, October 7.

The officers of the Woman's Auxiliary to the Missouri State Medical Association held a board meeting in Kansas City the last week in August. A luncheon was given in honor of Mrs. A. B. McGlothlan, St. Joseph, president of the National Auxiliary. Eleven members were present. Work for the year was discussed.

The Woman's Auxiliary to the St. Louis Medical Society resumed its "Open Day" meetings October 30. Luncheon was served at 12:30 at the St. Louis Medical Society Building and was followed by an address by Dr. Curtis H. Lohr, Hospital Commissioner of St. Louis, on "Our City Institutions."

The Auxiliary to the Buchanan County Medical



Society was entertained at a tea October 1 at the home of Mrs. A. B. McGlothlan, St. Joseph. The wives of visiting members of the Missouri Tuberculosis Association which was in convention in St. Joseph were guests of honor. A short business session was conducted by Mrs. Horace W. Carle, St. Joseph, president of the Auxiliary to the Buchanan County Medical Society.

## TRUTH ABOUT MEDICINES

**MERRELL-SOULE POWDERED PROTEIN MILK** (Boilable) (The Merrell-Soule Co., Inc., New York). A powdered food made from milk; higher in protein and mineral salts, lower in lactose than dry whole milk. It is only slightly acid. The preparation is proposed for use in infant feeding.

**JERRY'S KEW-BEE BREAD** (Jerry's Bakery Co., Terre Haute, Ind.). A white bread made by the sponge dough method.

**PAGE EVAPORATED MILK** (Sterilized, Unsweetened) (The Page Milk Co., Merrill, Wis.). An unsweetened evaporated milk. A mixture of one part water and one part of this product corresponds to the legal standard for whole milk.

**STALEY'S GOLDEN TABLE SYRUP** (A. E. Staley Manufacturing Co., Decatur, Ill.). A table syrup; a corn syrup base (glucose) flavored with choice refiners' syrup.

**STALEY'S CRYSTAL WHITE SYRUP** (A Savory Blend of Pure Corn Syrup, Granulated Sugar Syrup and Vanilla) (A. E. Staley Manufacturing Co., Decatur, Ill.). It is a mixture of corn syrup base (glucose) and sucrose flavored with vanilla extract. (Jour. A. M. A., May 30, 1931, p. 1872.)

**SMACO (206) POWDERED WHOLE MILK** (S. M. A. Corporation, Cleveland). A powdered spray-dried whole milk hermetically sealed in tins in an atmosphere of nitrogen. It is claimed by the manufacturer that each 12 ounce can will make 2.8 quarts of liquid milk of normal strength.

**FIRCH'S MA MADE BREAD** (Sliced and Unsliced) (Firch Baking Company, Inc., Erie, Pa.). A white bread (sliced and unsliced) made by the sponge dough method. (Jour. A. M. A., June 6, 1931, p. 1953.)

**TOREX** (Concentrated Beef Bouillon) (International Products Corporation, New York City). A semifluid mixture of beef extract, salt, vegetable extract, starch and powdered white pepper and onion; packed in block-tin tubes. It is claimed that this product dissolves instantly in hot water, that it permits the quick preparation of a warm drink for the home and camp table and that it is adapted for seasoning gravies, stews, etc.

**BOWEY'S HOT CHOCOLATE POWDER** (Bowey's Inc., Chicago). A mixture in powdered form of chocolate liquor, cane sugar and skim milk flavored with vanilla extract. It is claimed that this product makes a wholesome and delicious beverage of high caloric value which can be used in the preparation of delicious desserts.

**LIBBY'S STERILIZED UNSWEETENED EVAPORATED MILK** (Libby, McNeill & Libby, Chicago). An unsweetened evaporated milk. It is claimed that this product approximates ordinary milk when diluted with an equal volume of water. It is proposed for use in infant feeding and may be used in cooking and baking as is ordinary milk. (Jour. A. M. A., June 13, 1931, p. 2037.)

**MERRELL-SOULE POWDERED PROTEIN MILK** (Merrell-Soule Co., Inc., New York City). A powdered

food made from milk; higher in protein and lactic acid and lower in lactose than dry whole milk. It is claimed that when restored to liquid form with water it closely approximates Finkelstein's protein milk formula. It is said to be indicated in cases of dyspepsia, alimentary intoxication, marasmus and celiac diseases.

**SMACO (208) POWDERED SKIM MILK** (S. M. A. Corporation, Cleveland). An almost fat free skim-milk powder hermetically sealed in cans in an atmosphere of nitrogen. This product is intended especially for infant feeding, each 8 ounce can being claimed to be equivalent to 2½ quarts of normal strength liquid skim milk.

**MEAD'S POWDERED LACTIC ACID MILK NONCURDLING No. 2 PLAIN** (Mead Johnson & Co., Evansville, Ind.). A powdered, spray-dried homogenized milk containing added lactic acid. It is claimed that the powder may be readily mixed with cool or hot water to form a fine suspension. The mixture may be boiled without curdling or change of color or taste. It is recommended for infant feeding.

**PAUL'S REDI-SLICED BREAD** (Paul's Baking Corporation, Chicago). A white bread made by the sponge dough method, in sliced loaf form. It is claimed to be a bread of good quality. (Jour. A. M. A., June 20, 1931, p. 2104.)

**SAYLOR'S HOM-AID BREAD** (Saylor's Bakery, Inc., Tamaqua Heights, Tamaqua, Pa.). A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**KWALITY TWIN LOAF BREAD** (Kwality Baking Company, Champaign, Ill.). A white twin-loaf bread made by the sponge dough method. It is claimed to be a bread of good quality. (Jour. A. M. A., June 27, 1931, p. 2197.)

**VITAMIN D BOND BREAD** (General Baking Co., New York City).—A white bread prepared by the straight dough process containing an added special nutrient vitamin D equivalent to that of three teaspoonfuls of standard cod liver oil for each 24 ounces of baked bread (140 vitamin D units as defined by the Council on Pharmacy and Chemistry). This bread is an adequate food source of vitamin D for normal nutrition.

**LACTOGEN** (Nestle's Milk Products, Inc., New York).—A spray-dried modified cow's milk containing added milk-fat and lactose. The prescribed dilution approximates human milk in percentages of milk-fat, protein, lactose and total minerals and in dispersion of the fat in fine globules. Lactogen is intended for infant feeding.

**UFFELMANN'S GOLDEN KRUST BREAD** (The Uffelmänn Baking Co., Cincinnati).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality. (Jour. A. M. A., July 4, 1931, p. 31.)

**PLEZOL BREAD** (The Baker Bread Co., Zanesville, Ohio).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**HECHT'S FINE TWINS BREAD** (Hecht's Bakery, Bristol, Tenn.).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**CARNATION FLAKED WHEAT** (Carnation Co., Oconomowoc, Wis., and Seattle, Wash.).—A flaked, steam cooked, white wheat with the coarser bran portion removed. This product is claimed to be a wholesome "hot breakfast cereal" (for home cooking), containing all portions of the wheat berry excepting the outer coarser portion of the bran. (Jour. A. M. A., July 18, 1931, p. 179.)

**DROMEDARY FINEST FLORIDA GRAPEFRUIT** (The Hills Brothers Company, Florida).—The canned

segments of fully ripened Florida grapefruit packed in sucrose syrup. The grapefruit segments approximate 92.5 per cent and the sucrose syrup 7.5 per cent of the can contents. It is claimed that this product is as delightful as fresh fruit in flavor and texture and that the nutritional values of the grapefruit are practically unimpaired by the canning, the vitamin C content being only slightly decreased.

#### More Misbranded Nostrums

THE "SMEATON WAY" EYE DROPS.—A relatively insignificant piece of medical swindling has recently been put a stop to by the postal authorities, through the issuance of a fraud order against Smeaton Way, Vincennes, Indiana. "Smeaton Way" was the name under which William D. H. Smeaton was selling through the mails a preparation called "Itsgone-Eyedrops" which he claimed was a cure for all known eye diseases and even blindness. The "eyedrops" were made out of honey, egg yolk, melted butter and water. (Jour. A. M. A., January 3, 1931, p. 57.)

TREATMENT OF COUGH AFTER BRONCHITIS.—Children who cough should not be permitted to attend school. If the child has fever, it should be kept in bed. Warmth, as uniform as possible, is the prime requisite in the treatment of colds and acute coughs. The chief of all expectorants is water; without it most medicinal expectorants fail and, with an abundance of it, they may not be required. Nevertheless, they probably contribute, when wisely used, to a speedier evolution of the various stages of bronchitis and to a more rapid recovery. The salines, chief among them ammonium chloride and sodium citrate, head the list of agents that may reasonably be expected to be of use in "loosening up" a cough, provided they are given freely, frequently and with plenty of fluid. Iodide, the most powerful of the saline expectorants, should not be employed until the acute stage is well over. When the cough is "loose," aromatics may be of value such as terpin hydrate and creosote. A cough that hangs on is not so much an indication for medicine as a challenge to determine why it does. (Jour. A. M. A., January 3, 1931, p. 61.)

MYLIN NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry reports that "Mylin" is the uninforming name under which the Mifflin Chemical Corporation markets capsules, each stated to contain: amidopyrine,  $3\frac{1}{2}$  grains; caffeine alkaloid, 1 grain; oleoresin ginger,  $\frac{1}{4}$  grain; cornstarch,  $\frac{1}{4}$  grain. The preparation is offered to the laity with the assurance that it is quite safe to take for the relief of pain which may be the warning signal for a serious condition. The Council found Mylin unacceptable for New and Nonofficial Remedies because it is an unscientific mixture of drugs marketed under an uninforming name and with unwarranted claims which will lead to its ill advised use by the public. (Jour. A. M. A., January 10, 1931, p. 115.)

KOTEX.—Because of inquiries received in regard to the nature of the deodorant present in the widely advertised sanitary napkin, Kotex, the A. M. A. Chemical Laboratory examined the product. A specimen was labeled "Genuine Kotex Deodorized." An enclosed circular contained the statement: "Kotex is odor proof. A mild, pure, safe antiseptic removes any danger of offense during the use of Kotex." The Laboratory found the Kotex pads to contain an amount of boric acid which is too small to be considered of value as a deodorant. (Jour. A. M. A., January 17, 1931, p. 193.)

RENTON'S HYDROCIN TABLETS.—Under the name

"Renton's Rheumatic Tablets" the Renton Company of Pasadena, California, put out an alleged rheumatism cure a year or so ago, under the claim: "What insulin is doing for diabetes, Renton's Rheumatic Tablets are doing for arthritis, neuritis and rheumatism." After the preparation had been on the market for some time, the officials at Washington in charge of the enforcement of the Food and Drugs Act are said to have made the Renton Company eliminate the word "Rheumatic" from their labels and the nostrum became "Renton's Hydrocin Tablets." The A. M. A. Chemical Laboratory reports that each Renton's Rheumatic Tablet was found to contain essentially 0.32 Gm. (approximately 5 grains) of cinchophen, with a relatively small amount of an unidentified amine. The Laboratory reports that qualitative tests indicated Renton's Hydrocin Tablets to contain the same ingredients as found in Renton's Rheumatic Tablets, and that the amino compound present was identified as a tetra-ethyl ammonium compound. Although the tablets were stated to be enteric coated, the Laboratory found that the coating flaked off when they were immersed in .2 per cent hydrochloric acid. Summed up, it appears that people who pay \$1.50 for fifty Renton's Hydrocin Tablets are getting what is essentially fifty five-grain cinchophen tablets, which could be purchased at almost any drug store at half the price, and, what is of more importance, with the possibility of the dangers and limitations of the drug known. With the increasing number of cases of acute yellow atrophy of the liver following the continued use of cinchophen it seems little less than criminal that irresponsible "patent medicine" exploiters should continue to put this potent drug into their secret mixtures, with no warning as to the possible dangers in its continued use. Nor are the large and supposedly respectable pharmaceutical houses, which put up such formulas for "patent medicine" manufacturers, free from moral responsibility. (Jour. A. M. A., January 17, 1931, p. 209.)

MISLEADING METHYL CHLORIDE PUBLICITY.—The Committee on Poisonous Gases of the American Medical Association issued a report emphasizing the hazard arising from the use of methyl chloride in refrigerators. In the view of the committee it is more commendable to work toward the attainment of a nonhazardous refrigerant than toward the attainment of a useable warning agent. Nevertheless, chemical manufacturers have apparently been able to induce the Bureau of Mines to make studies of the properties of methyl chloride to which has been added acrolein, an irritating warning agent. One of these concerns, the Roessler & Hasslacher Co., markets methyl chloride under the trade name of "Artic" and Methyl Chloride A, which is pure "Artic" plus 1 per cent of acrolein. A report of the Bureau of Mines appeared which was written in such a way as to lend itself to use as advertising copy by writers seeking to create favorable propaganda for commercial exploitation of methyl chloride. The report emphasized that methyl chloride exerts no deleterious effects on the contents of the refrigerator and implied that it is therefore of no importance whether or not methyl chloride escapes into the refrigerator. The major point—the hazard of escaping methyl chloride to occupants near the source of the leak—is not stressed. The Roessler & Hasslacher Chemical Company has used the report to create the impression that "Artic" is a relatively harmless substance and the last word in efficient and safe refrigerants. It is unfortunate that a



branch of the government, the Bureau of Mines, has been swayed to serve more the interests of chemical manufacturers than to serve the interests of the public. (Jour. A. M. A., January 24, 1931, p. 272.)

**ANTITOXINS AGAINST SCARLET FEVER.**—No "one-shot" method of active immunization against scarlet fever has proved effective. The present status of the "ricinoleated antigens" is that they are of unestablished value. Their therapeutic action has not been proved. Scarlet fever ricinoleated antigen has been distributed by only one concern and that concern has recently discontinued the manufacture and distribution of ricinoleated antigen and is recalling it from the market. (Jour. A. M. A., January 24, 1931, p. 292.)

**THYMOPHYSIN.**—Thymophysin is a foreign proprietary preparation of posterior pituitary and thymus claimed to be an oxytocic to accelerate normal delivery. In German periodicals, many articles have appeared praising the virtues of this mixture for use in the first and second stages of labor. Even in America a number of favorable but uncritical articles have been published. Erwin E. Nelson, of the University of Michigan, has reviewed the literature and carried out experimental investigations. He points out that the literature reveals no controlled evidence that the oxytocic or pressor activities of pituitary is altered by the addition of thymus extract. From his experimental work it appeared that, in this country at least, Thymophysin is incorrectly labeled as to its strength and no difference could be ascertained in the oxytocic or pressor activity of pituitary extract as compared with pituitary plus thymus extract. Nelson believes that the clinical results obtained from Thymophysin can be explained completely as due to small doses of pituitary extract. Thymophysin illustrates again the pitfalls awaiting those who are not thoroughly competent to undertake clinical evaluations but who arrive at conclusions based on the use of material the composition and activity of which have not first been scientifically determined. If physicians wish to undertake experimental clinical investigations with drugs, they will save time and protect the interest of the patient by limiting themselves to drugs whose chemistry and pharmacology have first been studied by the Council on Pharmacy and Chemistry. (Jour. A. M. A., January 31, 1931, p. 359.)

**SMACO (203) CONCENTRATED LIQUID WHOLE MILK (Sterilized)** (S. M. A. Corporation, Cleveland).—A canned evaporated milk. The product is produced exclusively for infant feeding. It is claimed to keep indefinitely in the unopened can.

**GRAYSLAKE GELATIN** (Grayslake Gelatin Company, Grayslake, Ill.). An unflavored, unsweetened granular gelatin. It is claimed to be a good quality of food-gelatin prepared from the edible skin of government tested animals; recommended for use in normal and restricted diets and in all food-gelatin preparations.

**ZIM'S TWIN LOAF BREAD** (Zimmerman's Bakeries, Inc., Hannibal and Mexico, Mo.).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**KEW BEE BREAD** (Cole's) (Cole Baking Company, Bluefield and Welch, W. Va.).—A white bread made by the sponge dough method. It is claimed to be a bread of good quality.

**PRESTO CAKE FLOUR** (Self Rising) (Hecker-H-O Company, Inc., Buffalo, N. Y.). A self-rising flour containing monocalcium acid phosphate, potassium acid tartrate and sodium bicarbonate as leavening

agents and salt. It is claimed that Presto Cake Flour contains wholesome baking powder leavening and is especially adapted for cakes, biscuits and pastry baking.

**SWAN'S WHOLE MILK BREAD** (Swan Brothers, Inc., Knoxville, Tenn.).—A white bread made by the sponge dough method. It is claimed to be a milk bread of good quality. (Jour. A. M. A., July 25, 1931, p. 248.)

### PROPAGANDA FOR REFORM

**SOLVOCHIN, Not Acceptable for N. X. R.**—Solvochin (Spicer & Co., Glendale, Calif., distributor) is a solution of quinine hydrochloride containing small amounts of quinine base together with sufficient phenyldimethylpyrazolon (antipyrine) to render the basic quinine soluble. It is claimed that the solution possesses advantage over the usual quinine preparations in that it may be injected without local irritation. It is recommended in the advertising as the medicament of choice in the treatment of lobar pneumonia, and it is claimed to be essential that the injections of quinine for the treatment of this disease be by the intramuscular route. The Council on Pharmacy and Chemistry declared Solvochin unacceptable for New and Nonofficial Remedies because it is marketed with unwarranted therapeutic claims (Jour. A. M. A., May 2, 1931, p. 1477.)

**REFINED ANTIPNEUMOCOCCUS SERUM.**—Since the discovery of the etiologic relationship of the pneumococcus to pneumonia, the search for an effective antipneumococcus serum has continued unabated. Little progress was made in this direction until 1913, when the biologic classification of pneumococci by Dochez and Gillespie provided a rational basis for modern serum therapy in this disease. Reports on the use of refined and concentrated serum preparations bring evidence showing that a considerable reduction in the mortality rate of type I pneumonia is secured by the use of these preparations. Experiments with the type II pneumonia and particularly types III and IV were not favorable to the use of preparations representing these types. In conformity with the evidence, the Council on Pharmacy and Chemistry accepts antipneumococcus serum representing type I but does not accept serums representing other types or mixtures of all types, holding that type I serum alone is worthy of clinical trial. (Jour. A. M. A., May 2, 1931, p. 1505.)

**EPHEDRINE IN NARCOLEPSY.**—The use of ephedrine sometimes results in sleeplessness. Whereas this effect might contraindicate the use of ephedrine in some circumstances, it has seemed to indicate its utilization in others. For instance, ephedrine has been found effective in counteracting the results produced by some of the barbiturates and of morphine. Ephedrine has also been used in the treatment of narcolepsy and its related phenomenon, cataplexy. (Jour. A. M. A., May 9, 1931, p. 1626.)

**PIXSUL.**—In reply to an inquiry regarding the composition of "Pixsul," the Pixsul Corporation, Atlanta, Ga., replied: "Pixsul is secret in composition." This should be sufficient to condemn it in the eyes of the medical profession. It is generally admitted and incorporated in the Code of Ethics that no physician shall use on his patients a preparation the composition of which is held in secret. The trade package of Pixsul Lears recommendations typical of a "patent medicine" such as for eczema, ringworm, poison oak, toe itch, barber's and parasitic itch—burns, bruises and insect bites. The product appears to contain both sulphur and tar. (Jour. A. M. A., May 9, 1931, p. 1643.)

## BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 11, No. 4. (Mayo Clinic Number —, August, 1931.) Octavo of 211 pages with 74 illustrations. Philadelphia and London: W. B. Saunders Company. Per clinic year, February, 1931, to December, 1931. Paper, \$12.00; cloth, \$16.00.

This is the Mayo Clinic number and contains numerous articles on a wide variety of topics contributed by the staff. It is well illustrated.

PROCTOSCOPIC EXAMINATION AND THE TREATMENT OF HEMORRHOIDS AND ANAL PRURITUS. By Louis A. Buie, B.A., M.D., F.A.C.S., Section on Proctology, The Mayo Clinic, Rochester, Minnesota, and Associate Professor of Surgery, The Mayo Foundation, University of Minnesota. With 72 illustrations. Philadelphia and London: W. B. Saunders Company. 1931. Price \$3.50.

Dr. Buie in a clear and concise manner presents the newer methods of accurate diagnosis of the common rectal diseases and their treatment. His method of the injection treatment of hemorrhoids is very practical. M. J. G.

A TEXTBOOK OF GENERAL BACTERIOLOGY. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Fully illustrated. Tenth edition, entirely reset. Philadelphia and London: W. B. Saunders Company. 1931. Price \$6.00.

This edition of Jordan's well known text is remarkable for the changes made to keep it abreast of the times. The most striking feature is the author's departure from the old nomenclature. We are not sure that the new names are agreeable, probably because for years we have been accustomed to the phrases typhoid and dysentery bacilli instead of "eberthella," and to gonococcus instead of "Neisseria gonorrhoeae." Valuable summaries of the viruses, inclusion bodies and the bacteriophage have been added, and there are revisions in the pathogenic yeasts, anaerobes and undulant fever. Altogether, this book, which is two hundred pages larger than the last edition, makes its predecessor thoroughly out-of-date. A. S. W.

DIAGNOSTIC METHODS AND INTERPRETATIONS IN INTERNAL MEDICINE. By Samuel A. Loewenberg, M.D., F.A.C.P., Associate Professor of Medicine, Jefferson Medical College, etc. With 547 illustrations, some in colors. Second revised edition. Philadelphia: F. A. Davis Company. 1931. Price \$10.00.

The second revised edition of this work presents many changes and the addition of new material which render it of more distinct value to the general practitioner. The subject matter has been arranged to make the volume thoroughly modern in all diagnostic methods. Illustrations and diagrams are profuse and serve to elucidate the text so that it is easy to understand the principles underlying the physical phenomena. A most valuable feature is the arrangement of the differential diagnosis of diseases in table form so the reader may quickly analyze the

symptoms of diseases presenting similar symptom complexes.

With the newer mechanical methods in diagnosis some of which are invaluable, the sections on physical diagnosis are complete. This work should be of value to medical students and general practitioners as well as to those who may want ready reference to data on physical diagnosis.

The book can be highly recommended to those who are still interested in the art of physical diagnosis. A. McM.

NUTRITION AND DIET IN HEALTH AND DISEASE. By James S. McLester, M.D., Professor of Medicine at the University of Alabama, Birmingham, Alabama. Second edition, revised and reset. Philadelphia and London: W. B. Saunders Company. 1931. Price \$8.50.

This is a monumental work. The preface tells us it is written mainly for students and practitioners. It might well have added "for postgraduate students and research workers in dietetics," so complete does the reviewer find the book.

Opening with a chapter on metabolism the author delves minutely into the digestion and absorption of foods and treats in detail and in a fascinating manner of the nutrition factors of importance, the proteins, carbohydrates, fats, salts, vitamins and water, and all the time the relation of these substances to clinical medicine is emphasized. There is a chapter on the different foods with special stress on the outstanding position of milk in dietetics; and another well-written chapter on diet of infants, specially written by McKim Marriott of Washington University. The author treats the different diseases from a dietetic point of view, explaining through their etiology and symptomatology the reasons for the dietetic prescriptions. He gives special itemized diets for daily meals wherever this seems to be important.

Here we have what is probably the best and most complete book on diet in the English language. The amount of love and labor put into this work is astounding. To find fault with such a book is like picking imaginary flaws in a master painting. Attention is directed to certain faults however in order that they may be eliminated from future editions.

That the name of the pioneer and father of metabolic research, Voit, of Munich, is misspelled "Voigt" is probably a typographical error; but that practically no mention is made of this great research worker in metabolism, of his respiratory chamber and his many contributions to the science of nutrition and dietetics when everybody else is mentioned, surely is an oversight. Lusk even dedicates to Voit his great work "Science and Nutrition," recognizing in him the great teacher and scientist that he was. In the chapter on vitamins, practically no mention is made of yeast as one of our chief sources of vitamin B.

In discussing the digestibility of foods much emphasis is put on results gained from experiments on dogs. This is risky; it is hardly possible to translate such results in terms of human dietetics. Dogs have a different set of teeth and a much higher gastric acidity than humans have. They do not chew their food as humans do, or should, and therefore much caution, conservatism and an open mind are necessary to apply such experiments to human physiology.

No mention is made of mastication as an important step in the digestibility, absorbability and



utilization of food. One need not carry mastication to the extreme point of Fletcherism and still contend that it is a necessary step in the proper digestion of food. And this notwithstanding statements found in the book that psychic factors (and mastication by accentuating and prolonging the taste of foods is such a factor) do not seem to influence the ultimate utilization of foods; that meat, potatoes and swiss cheese if eaten in lumps are more completely digested than if eaten ground, mashed or grated. This may be true of dogs but not of humans. Nor can I agree that hot breads do not deserve their reputation for indigestibility. Everybody has experienced the superiority in that respect of well toasted bread over hot breads.

I also miss in the subject of enterocolitis or bacillary dysentery of children the latest dietetic specific, "an exclusive diet of finely grated raw apples."

But I came to praise, not to disparage. And if in a book of 891 pages no more faults could be found than those mentioned it proves that the opinion of the reviewer is sound when he says that here we have what is probably the best and most complete book on diet in the English language.

No student or practitioner of medicine, nor any student of dietetic problems should fail to add this book to his library.  
I. J. W.

**CRIPPLED CHILDREN.** Their Treatment and Orthopedic Nursing. By Earl D. McBride, B.S., M.D., F.A.C.S., Instructor in Orthopedic Surgery, University of Oklahoma School of Medicine, etc. One hundred and fifty-nine illustrations. St. Louis: The C. V. Mosby Company. 1931. Price \$3.50.

Dr. McBride has written according to his preface a book which aims to place in the hands of nurses, social service workers and parents, information which will aid them in the care of physically handicapped children. The writing of such a book is a task of more than ordinary difficulty in that it requires a nice distinction between going far enough to give important and useful information and not going so far as to burden the reader with information and details beyond his power to assimilate.

In reviewing Dr. McBride's book, one is forced to conclude that he has encountered the usual pitfall lying in wait for the technically trained individual who attempts to write for the laity,—the pitfall of attempting to tell them too much. While Dr. McBride has shown considerable restraint in selecting the topics to be discussed from the great mass of orthopedic conditions encountered he has, nevertheless, included some diagnostic facts and suggestions for treatment which require the judgment of experienced physicians rather than the opinion of nurses, social service workers or the laity. This book then is open to the criticism that it is too advanced to fulfill the purpose for which it was written.

The material included is however exceedingly well-handled, the illustrations are excellent and really illustrate, and the suggestions included for the management of orthopedic cases are sound and adequate. This book should appeal to the general practitioner of medicine rather than to those for whom it was written as it affords valuable information which should be helpful to those who see orthopedic conditions only occasionally and so cannot be expected to be familiar with the diagnosis and treatment.

On the whole, Dr. McBride deserves to be commended upon the production of a very attractive and useful monograph dealing with the commoner ortho-

pedic conditions and we are sure the work will be well received by those interested in the problem of the physically handicapped child.  
F. D. D.

**SELECTIONS FROM THE PAPERS AND SPEECHES OF John Chalmers DaCosta, M.D., LL.D., Samuel D. Gross, Professor of Surgery at the Jefferson Medical College, Philadelphia. Philadelphia and London: W. B. Saunders Company. 1931. Price \$6.50.**

The volume is dedicated to Dr. Harvey Cushing. It is essentially a souvenir of Dr. DaCosta. As such it will be pleasant reading to the alumni of Jefferson Medical College and to others who have come in personal contact with Dr. DaCosta.

The articles are essentially references to and characterizations of the various medical men with whom Dr. DaCosta has come in contact. Thus, his discussion of "Medical Paris during the reign of Louis Philippe" is redolent with the personalities of the various clinicians of that city. His "Baron Larrey" is interesting and instructive; his "Dickens' Doctors" has a literary flavor. Then he gives biographical sketches of Dr. Gross, Crawford W. Long, and William Williams Keen.

For one who has read the books written by these men it is a pleasant book to have in his library to pick up during leisure moments. There is a personality to all the discussions which takes them out of the realm of dry literature and makes the reader feel as if he were sitting at Dr. DaCosta's fireside. It is to be regretted that no one saw fit to add a sketch of Dr. DaCosta himself, for those of us who have not had the pleasure of knowing him personally.  
G. H. H.

**PRIMARY SYPHILIS IN THE FEMALE.** By Thomas Anwyl Davies, M.D. (Lond.), Director of the Whitechapel (L. C. C.), Clinic, Turner Street, E. 1, etc. Thesis approved for the Degree of Doctor of Medicine in the University of London (*Gold Medal*). Oxford University Press, American Branch, 114 Fifth Avenue, New York. 1931. Price \$4.00.

For some occult reason syphilis is nearly always kinder to women than to men when either is infected with the disease. Why this is true no one knows, unless it is due to the fact that the female biologically is more important to the human race than the male. Whatever the reason, the feminine part of the human race suffer less when infected with syphilis than the male and in some instances are almost free from certain manifestations that persist in disabling the male. For example, aortitis and aneurysm are rarely seen in women and tabes dorsalis and paresis occur much less frequently. What manifestations women do have are often much modified by their sex, especially as regards the original site of infection.

Davis has taken these facts into consideration and takes up in great detail the peculiar manifestations produced by syphilis in the female during the stage of invasion.

The book is well written, full of excellent illustrations and valuable suggestions as to therapeutic measures. Especially strong is the chapter on the cervical chancre. He gives the greatest credit for valuable work along this line to two Missouri men,—Gellhorn, of St. Louis, and Stookey, of Kansas City.

This book is of special value to the obstetrician and gynecologist.  
C. C. D.

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### Symposium on Appendicitis

*(Continued from November issue)*

#### PRESENT CONCEPT OF CHRONIC APPENDICITIS \*

ARTHUR E. HERTZLER, M.D.

HALSTEAD, KANSAS

I propose to attempt to trace in a brief way the development of the concept of chronic appendicitis: how it came into being, what or who perpetuates it.

It seems advantageous to divide the problem into several subheads which it would need to fulfill in order to establish it as a disease entity: (1) Being a part of the gut tract the appendix must behave as such. Lesions in it must exhibit changes comparable to like changes in other parts of the tract. They must be tangible and constant, visible to all good pathologists. (2) These constant changes must parallel symptoms as we see them elsewhere in the intestinal tract and be capable of producing symptoms comparable to like lesions situated elsewhere. (3) The symptoms alleged to be dependent on the lesion must be relieved and stay relieved by the removal of the appendix.

These factors can best be considered under the following headings: (1) The pathologic findings generally ascribed to chronic appendicitis; (2) the pathologic physiology, how the lesions are supposed to produce the symptoms ascribed to them; (3) the clinical study of the evidence, including particularly the careful and persistent follow-up for at least five years after operation.

The fundamental factors revolve around what shall be regarded as a normal appendix, what abnormal, what kind and degree of changes shall be regarded as abnormal, what changes are terminal processes incident to acute inflammation without clinical symptoms and what are simple evolutionary states incident to advancing

age. The chief misleading factor has been the utter disregard of the nature and purpose of the inflammatory process as such and the changes incident to advancing years.

There is still some confusion as to what shall be regarded as a normal appendix. The appendix being abundantly supplied with lymph tissue it is inevitable that involuntary processes should occur with advancing age. Yet Rohdenberg<sup>1</sup> accepts as a normal standard appendices of infants between 4 and 12 months; obviously an untenable position. If one judged the adult as a whole by the same standard, as compared to the infant every adult would be afflicted with say, to mention only the most obvious, atrophy of the liver, chronic inflammation of the thymus and atrophy of the gonads. Numerous authors speak of the hypertrophy of the lymph follicles in the child. It would be just as proper to speak of hypertrophy of the liver, of the thymus, etc. It should be perfectly obvious that an objective study of organs must keep in mind the standard for given age periods.

It is necessary to exclude from chronic appendicitis terminal processes following acute appendicitis. These are clearly defined and easily recognized. They are scars, and scars in appendices cause no symptoms as clinical observation abundantly proves. Scarring of like magnitude in other parts of the gut tract produces no symptoms. No one should attempt to grasp the problem of chronic appendicitis until he is thoroughly conversant with the life history of acute appendicitis, knows the meaning of the inflammatory process and its purpose in the economy and, finally, appreciates the position in pathology of terminal processes. Unless the investigator keeps these points in mind his conclusions can hardly be anything more than inane platitudes. The literature abundantly proves this statement. Scarring is a state while chronic appendicitis if it is anything is a process. Rohdenberg hypothecates compression of nerves by scars as the cause of the disturbance. We know that the nerves of the gut tract are insensitive to compression.

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



Pinching of a gut with forceps causes no pain. It is stretching of the nerves that causes pain. We may infer that in so far as the nerves to the gut walls transmit pain the purpose is to give information as to the degree of distention of the gut. In ordinary bellyache it is distention behind the contracting part that gives rise to the pain.

The chief source of confusion as to what should be regarded as pathological, centers around misinterpretation of publications which present structural changes incident to advancing years. The first fundamental paper on this phase of the subject in this regard was Ribbert's. This paper was clear, based on adequate evidence and the author abundantly able. The paper should have settled this phase of the subject for all time. It was not due to any misconception on the part of Ribbert but the misinterpretation of his work by clinicians that has caused the trouble. He states definitely<sup>2</sup> that the changes are due to an involuntary process, a perfectly obvious conclusion, seeing that these changes increase with advancing age while the incidence of acute inflammations rapidly decreases. He points out that obliteration is not a sign of pathologic change but one of involutional process. These involutional changes occur with equal frequency in males and females. The oblitative changes were most frequent beyond middle life; 27 per cent between the ages of 40 and 50 and 58 per cent between 70 and 80. He found no evidence of inflammatory changes in the muscle layers in the obliterated appendices. In none was there evidence of inflammation proximal to the site of obliteration. He found evidence of inflammation in but 6 cases in 450 examined.

Unfortunately Ribbert publishes few pictures to illustrate the changes he described. Pictures which would permit one to visualize just what changes he had in mind as involutional would have prevented much confusion by subsequent investigators. It should be the rule that every one publishing papers dealing with problems in pathology should publish illustrations.

Much has been made of the obliteration of the lumen of the appendix. The general impression seems to be that when such is found it must be due to some pathologic process and that it continues to exert a baneful influence on its possessor. A complete disappearance of all evidence of mucosa and submucosa in my experience is relatively rare and found mostly in those appendices in which the artery terminates some distance from the tip, and in these one cannot be sure that the appendix ever had a lumen for it is not uncommon to find a lack of lumen in embryos and infants under

such circumstances. That obliteration may follow an acute process is unquestioned. That it also is found when there is no evidence of any past reactive process is equally true. This is found commonly in fat women late in life. That an obliterated appendix exerts any influence whatever on its possessor is wholly without proof.

Unfortunately, Ribbert<sup>3</sup> revised his opinion and in his second theory he regards the obliteration as due to proliferation of the submucosa due to fecal abrasion, bacterial intoxication producing an irritation of the submucosa leading to an obliteration. Therefore, the obliteration is due to a chronic inflammation. It seems a painful surprise to many writers that the appendix should contain nasty feces. Such a state in their minds can but have a baneful influence on the mucosa of the appendix and in consequence on all other machinery of the body, including the physiology of menstruation.

Keith<sup>4</sup> writes as follows: "If we could follow the life histories of 1000 modern Europeans from birth to their seventieth year the following would be the fate of their appendices: By the end of the tenth year the lumen of this structure would be partially or completely obliterated in 40 of them; by the twentieth year the same fate would have overtaken 70 more; by the thirtieth year 60 others would have been added to the list; by the fortieth year 80 further cases of obliteration would have occurred; by the sixtieth year there would be 110 additional cases. Of the 1000 people who reached the age of 70, only 500 of them would retain their appendix in an unblemished functional state; in the other 500 the appendix would have undergone a premature atrophy at succeeding stages in the journey through life."

Aschoff<sup>5</sup> set forth clearly that anatomic changes demonstrable in the appendix are the result of a previous acute inflammation.

It is possible with all the data in hand to say in the concrete case whether anatomic changes are due to previous acute inflammation or to involutional processes.

It is worthy of note in passing that if this theory were correct and such changes were responsible for clinical symptoms commonly ascribed to such changes, the frequency should increase with advancing years and operations for chronic appendicitis should be most common in the aged. Every pathologist knows that the vast majority of "chronic appendices" are removed from young persons and most of them from young girls at that.

The literature contains many curiously unsubstantiated statements and equally curious contrasts. Pankow,<sup>6</sup> for instance, found cer-

tain evidence of inflammation in 56 per cent of appendices removed as routine during gynecological operations, presumably in cases showing no clinical evidence of appendicitis. Oberndorfer<sup>7</sup> declares that in old people there are no normal appendices; all show evidence of chronic inflammation. In 216 cases he found none obliterated in continuity. Both these authors speak of the action of attenuated bacteria on the mucosa as being the active factor in the production of chronic inflammation. This same assumption is found again and again without end in the literature. Not one has ever paused to inquire if there was ever any evidence adduced to substantiate it. Just because fecal concretions are associated with acute lesions is no evidence that the appendiceal mucosa is particularly susceptible to the ordinary gut contents.

Beuttner<sup>8</sup> presents a curious mixture of questionable pathologic observations and sound clinical sense. In 1400 gynecological operations the appendix was inspected in all but 121. Of these 216 were abnormal. Of the normal group 100 were studied histologically and 63 were found to contain lesions. In only 4, however, did he consider appendectomy absolutely indicated. He found little correspondence between the macroscopic and microscopic pictures. He would consider a removal of an appendix presenting little or no macroscopic change only if the history revealed past appendiceal trouble. This author, despite his wide experience, has never encountered a case of appendicitis in a patient previously the subject of gynecological intervention. Therefore he condemns routine appendectomy. Despite the fact that 63 per cent of those examined microscopically showed evidence of disease he has found that this never produced appendicitis after a gynecological operation. He does not allow his pathological fetish to disturb his keen clinical observation.

More painful to behold is the opinion of Hale.<sup>9</sup> He sees the chronically inflamed appendix exuding a toxic fluid which causes an irritation of the parietal peritoneum. The effect of the hanging of the appendix in the pelvis is that it causes a like reaction in the ovary. As evidence of such reaction he sees the white thick cortex of the ovary. Therefore an enlarged tender right ovary means appendicitis.

It is not necessary that one assume that his diagnosis is wrong if the patient with a chronic appendicitis fails to quit complaining after operation. Von Redwitz<sup>10</sup> has a better way: The persistence of the pain is due to an endoarteritis obliterans.

Of greatest significance to the surgeon who tries to bolster up his clinical opinions and acts

by alleged pathologic processes is the reaction of many able pathologists to the subject. There is a general disposition of pathologists to wash their hands of the whole chronic appendicitis problem. Boyd<sup>11</sup> remarks that "The pathologist is frequently consulted as to whether a given appendix which has been removed could produce the symptoms complained of, which is tantamount to asking his opinion about chronic appendicitis. It appears to the writer that no pathologist is able to return a satisfactory answer to this question. . . . the fibrotic and other changes supposed to be indicative of chronic appendicitis are wholly inadequate to explain the symptoms ascribed to them."

Christeller,<sup>12</sup> after discussing the variable clinical conditions ascribed to chronic appendicitis, remarks: "From the foregoing it must be left to clinical experience to determine what conditions will be relieved by the removal of the appendix. Definite morphologic changes cannot be expected in appendices removed at operation under such circumstances."

It is obvious therefore that the problem must be settled by the clinician. I have been asked on a number of occasions by resident pathologists of hospitals what might be entered on their reports which would not jeopardize their own standing as pathologists and yet not offend the members of the surgical staff who present appendices removed under the diagnosis of chronic inflammation. That is a question easily answered: It takes very little to satisfy the average surgeon, so that a statement that there are numerous lymph follicles in the submucosa, some scattered mononuclear cells in the submucosa and some perivascular thickening of the subserous vessels will satisfy him. From such a statement he may be allowed to make his own diagnosis.

The most generally accepted explanation of the action of the chronic appendix is by reflex action. The diminutive lesions at best are believed to do something to the splanchnic nerves which disturb other organs. The most generally accepted and the sanest is the action on the stomach. Lower abdominal tenderness with stomach derangements are not uncommon but the mode of action is not proved. The fact that the acutely inflamed appendix is attended by stomach derangements cannot be used as an argument in the support of a like action in the chronic appendix. In the acute, the nerve plexus is stretched by the distention caused by the acute inflammation. This can be imitated by distending the lumen of the appendix with a forceps. The same is true of the gallbladder. Compression cannot produce the same symptoms, even assuming that there is a scar and that the nerves are compressed in chronic ap-



pendicitis. Any proof of relationship therefore must be clinical.

Chronic appendicitis as a continuous process now has few defenders. The bone of contention exists as terminology. Some still regard terminal stages of acute attacks or recurrent attacks as synonymous with chronic inflammation. History alone should differentiate these from the chronic pains which continue for years without change. Some surgeons are frightened from a conservative procedure by the alleged increase in deaths from appendicitis. Those who experience this misfortune have this problem to answer. It cannot be accepted as an excuse for removing appendices in dysmenorrheic young girls. Perhaps Urban Maes<sup>13</sup> has found the source of some of the difficulty. He says, "Chronic appendicitis is the happy hunting ground of the occasional operator." Perhaps it is the occasional operator who can explain the increase in the mortality of appendicitis.

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### ANALYSIS OF ONE THOUSAND APPENDICES FROM THE VIEWPOINT OF THE PATHOLOGIST\*

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The subject of appendicitis has been attacked from almost every imaginable standpoint and there are still certain distinct aspects to be considered. Frequently, the surgeon, internist, roentgenologist and pathologist tend to have

somewhat different conceptions of this disease; hence, a great deal of confusion exists both as to nomenclature and treatment.

There is little doubt but that many appendices are removed unnecessarily and it is with the idea of clarifying if possible some questions in this regard that this investigation is undertaken.

The chief interest of the pathologist in the appendix has been in its pathogenesis rather than its treatment, and he often arrives at certain rather dogmatic conclusions drawn merely from the routine examination of the gross and microscopic anatomy of the appendices which come under his observation in a large surgical service. Needless to say, such conclusions are apt to be faulty since they have a tendency to be tinctured with certain outstanding examples or groups of outstanding examples; hence, his judgment may be warped. Therefore, a thoroughly unbiased analysis of a rather large series of cases is essential to clear thinking. I approached such an analysis with fairly definite ideas many of which, I must confess, have been strikingly altered.

The material used in this investigation was taken from one hospital where, as pathologist, I was well acquainted with the surgeons. I not only had the opportunity to examine the appendix immediately after the operation but also to see it removed in a large percentage of cases, and not infrequently I was able to observe the patient prior to the operation. In all cases I was familiar with both the history and the historian (the latter usually the intern) and in many instances I knew something of the after-course.

A series of 1000 cases was analyzed. This series comprised the number of appendices removed between January 1, 1928, and March 17, 1931, a period of three years and three months, during which time the number of surgical cases presenting material for examination was 8,691. These cases have been grouped, from a diagnostic standpoint, as follows: (1) Acute and subacute; (2) so-called "chronic," healing or receding inflammation; (3) obliterating and obliterated; (4) involutonal and atrophic; (5) negative or normal.

Table 1 is a summary of all the specimens examined. It shows that of these 1,000 cases 352 of the total number of specimens, or 35.2 per cent, were removed incident to some other abdominal operation, such as salpingectomy, hysterectomy and the like, and could be classified as prophylactic appendectomies.

This paper will not deal with the merits of so-called prophylactic appendectomy although its justification has been seriously questioned. It will be assumed, in order to avoid unnecessary

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Table 1. Summary of all the specimens examined

Total number of pathological specimens examined (1-1-28 to 3-17-31)						8691		
Total number of appendices removed in this group						1000		
Per cent						11.5		
	Number Removed With Diagnosis of Appendiceal Disease		Per Cent	Number Removed Incident to Other Operation		Per Cent	Total Number Removed	Per Cent
Acute and subacute	288		28.8	12		1.2	300	30
So-called chronic, healing or receding inflammation	65		6.5	69		6.9	134	13.4
Obliterating and obliterated	110		11.0	130		13.0	240	24
Involucional and atrophic	93		9.3	77		7.7	170	17
Negative or normal	92		9.2	64		6.4	156	15.6
Acute appendices removed without other operations							288	28.8
Prophylactic appendectomies (incident to other operations)							352	35.2
Appendices removed without other operation, other than acute							360	36.0

argument, that it is justifiable and we can therefore deduct these cases from the total number. Table 2 shows such a readjustment with these prophylactic cases eliminated leaving 648 cases to be evaluated which represent the number of patients upon whom a diagnosis of appendiceal disease was made and the appendix was removed because of such a diagnosis.

Table 2. Analysis of 648 Appendices Removed, Not Incident to Other Operation

Diagnosis	Number	Percent
Acute and subacute	288	44.4
So-called chronic, healing or receding inflammation	65	10.0
Obliterating and obliterated	110	18.2
Involucional and atrophic	93	14.3
Negative or normal	92	14.2

Of these 648 appendices 288, or 44.4 per cent, were acutely or subacutely inflamed and hence could be unhesitatingly considered as justifiable cases for surgery. Group 2 of table 2 comprises the so-called "chronic" or healing appendicitis. Of the 648 appendices examined there were 65, or 10 per cent, in this group. It is in this class that a great deal of dissension exists regarding surgical intervention. Gross examination of the specimens in this group shows serosal roughening, subserous vascular dilatation, frequently adhesions to the surrounding structures and nearly always obvious thickening of the walls. Microscopic examination shows leukocytic reaction in the walls, particularly in the muscular coats and the subserosa. In such a reaction the leukocytes are found to be plasma cells, lymphocytes and eosinophils. This reaction, from the standpoint of pathogenesis, represents active healing from a previous acute inflammatory reaction and is probably symptomless. In view of the clinical fact that there is a strong tendency to recurrence of acute attacks and since, in the patient's history, a definite story of a previous attack or attacks may be obtained, cases of this type would also seem to be in the group in which surgical removal of the appendix might be excusable.

The word "chronic," when used as a chronological term, means to most pathologists an inflammatory reaction which has been present

for a period of two weeks or longer. To many surgeons, however, the term signifies the presence of symptoms; therefore, it might be better to say that these are cases of "healing" appendicitis and thus eliminate the impression that this type of perverted anatomy is actually causing trouble to the patient at the time of its removal. If these so-called "chronic" appendices are removed with the understanding that they represent only a healing inflammatory reaction which may subsequently become acutely inflamed, there may then be some justification for their removal, and it would thereby be possible to add 10 per cent to the already existing 44.4 per cent representing the acute and subacute cases. This makes a total of 54.4 per cent and comprises the acute, subacute and so-called "chronic" groups. The meaning of the nomenclature, however, in the so-called "chronic" type should be thoroughly understood by both the surgeon and the patient.

Group 3, labeled "obliterating and obliterated," is next in order for consideration. Here the question is, do the changes observed grossly and microscopically represent a physiological atresia or the result of a previous inflammatory process? Therefore, it is manifestly important to know which of these two views is true or whether both may be true.

One observation which we have made, and which would seem to have some bearing on the subject, is that in about 30 per cent of cases of gallbladder removal for obvious disease the appendix also is taken out, the latter being little more than a cord of dense fibrous tissue buried in a thick mass of fatty mesentery. Whether this is due to a concomitant inflammation of the appendix, as claimed by the proponents of such a relationship, is open to question. Hertzler,<sup>1</sup> in discussing atrophy and fibrosis of the appendix, thinks that both are changes which are found in people with fat mesenteries and result from ever-increasing pressure of fat on the appendix, and hence do not represent inflammatory changes at all. This interesting relationship with coexisting gallbladder disease tends to substantiate Hertzler's



assumption since many of these gallbladder patients are fat and many show a cholesterol infiltration of the gallbladder mucosa. This type of appendix has frequently been seen in fat people at necropsy and occasionally in combination with a gallbladder removed surgically where no active inflammatory lesion was found in either organ. On the other hand, Alexander Hellwig<sup>2</sup> (quoting Ribbert, Zuckerkandl and Sudsucki) states that these authors felt that the obliterating change was a physiological age involution, while he himself agrees with Senn who refutes this theory on the ground that we must expect more inflammation in old people because they have lived longer and therefore have a greater chance to suffer from acute appendicitis.

It is my own belief that these changes may result from inflammation, from a physiological involution, or from the pressure of a fat mesentery. I have seen many patients who have had a typical history of acute appendicitis come in later with an obliterated appendix; and I have also not infrequently encountered such specimens removed from young, thin individuals where neither age nor fat tissue pressure could be considered as possible factors. Moreover, it is not a rare experience to examine an appendix whose caliber is small and whose lumen is of almost microscopic diameter where the walls are the seat of an acute, diffuse, inflammatory reaction causing all the clinical symptoms of acute appendicitis. Therefore, it is quite difficult to give an accurate estimate of the number of these appendices which could have been removed with some justification had the diagnosis been healing appendicitis. It seems that the majority of these appendices were not causing any symptoms and those that had become completely obliterated would probably never again become acutely inflamed, although the appendices that still maintained an intact lumen no matter how small would be disposed to subsequent attacks. About 40 per cent of our obliterating and obliterated group is of the former variety while those of the non-occluded group comprise the remainder. Thus, on these very questionable grounds we might be able to reduce the number 45.6 per cent, or that number remain after eliminating the acute and chronic types by 10.9 per cent which leaves us 34.7 per cent to be called involutional, negative and completely obliterated.

Naturally, the involutional and negative cases are the subject of greatest controversy. I have placed in this group those of my series upon which I was unable to find anything on either gross or histological examination which would be considered as justifying surgical re-

moval. In the involutional and atrophic group there are 14.3 per cent; in the negative or normal group 14.2 per cent.

The involutional and negative groups comprise 28.5 per cent of all the appendices removed in which a diagnosis of appendicitis was made and the appendix removed because of that diagnosis. As shown in table 2, 14.2 per cent showed no demonstrable alteration from normal either grossly or histologically. The choice of a norm is of course a difficult matter. That designation was here applied to those cases with no obvious scarring of the wall nor any outstanding round cell reaction of the muscularis or subserosa and where no adhesions of sufficient caliber to cause apparent torsion were found. Those specimens presenting extreme thinning of the walls with atrophy of all coats and diffuse hyalinization of the submucosa with atrophy of the mucosa and decrease in the number and size of the follicles, were classed as involutional. Cases of similar character, where careful examination reveals no definite signs of previous inflammation, are often found in the aged at postmortem, hence, we feel that these also are not diseased nor is there proof that they ever were.

There are varying views on this subject. In Alexander Hellwig's study of the appendix<sup>2</sup> he found that 49 per cent of the specimens diagnosed clinically as chronic, showed no inflammatory reaction. He states also that Melchior found only 40 per cent of his patients with so-called "chronic" appendicitis to be relieved by appendectomy.

That restitution to complete anatomical normality can actually occur following an acute attack of appendicitis is not difficult to believe. Hertzler has cited to me cases in his own practice where he has drained a periappendiceal abscess only to remove from the same patient many months later an anatomically normal appendix. On the other hand, it is not an unheard of experience to find cases of diffuse suppurative appendicitis with the accompanying clinical manifestations so mild that the temperature is but slightly elevated and the leukocyte count raised but a fraction. The surgeon in these cases may open the abdomen with great hesitancy and then find, contrary to his expectations, a very serious situation. Moreover, it is not an unusual experience to encounter at necropsy a patient who has developed a general peritonitis because the surgeon hesitated too long in deciding upon surgical intervention due to the mildness of the clinical manifestations.

Of course it is not within the scope of the pathologist to give his opinion as to the aftercourse, but it has been my observation that in

my series many of the appendices in the groups designated as negative and atrophic were obtained from girls and young women between fifteen and twenty-five years of age. In fact, it is a novelty to me to encounter a badly diseased appendix in the female during these years, and I have observed that after appendectomy most of these patients still have the same trouble for which the appendix was removed.

#### SUMMARY AND CONCLUSIONS

1. Of the 8691 surgical cases in which specimens were examined in the pathological laboratory in three years and three months 1000, or 11.5 per cent, were appendectomies.

2. Prophylactic appendectomies, so-called, absorbed 352 cases, or 35.2 per cent of this number, and the decision as to whether such a procedure is justifiable is as yet to be proved.

3. Surgeons of mature judgment feel that immediate removal of the acutely inflamed appendix is the safest and sanest procedure. Although there is little doubt that many appendices are removed unnecessarily, in this series 44.4 per cent of the 648 analyzed after deducting the "prophylactic" cases was found to be acute and subacute.

4. In the so-called "chronic," healing or receding group which comprised but 10 per cent of the above series, there is apparently good authority which finds justification for their removal on prophylactic grounds if for no other reason. The chief objection here is the false assumption on the part of many that appendices showing these changes cause symptoms.

5. In 30 per cent of the cases where gall-bladders were removed for obvious disease the appendix was little more than a fibrous cord.

6. Twenty-eight per cent of the 648 showed no anatomic alteration which would justify their removal.

7. The observation is made that few women between 15 and 25 years of age have acute appendicitis nor do their symptoms often disappear after appendectomy for the nonacute variety.

8. The obliterating and obliterated groups might well be divided. The latter, 7.3 per cent, is doubtless safely left alone while the former, 10.9 per cent, even pathologists of long experience feel is prone to reinfection because in an appendiceal lumen of decreased caliber retention of contents and subsequent bacterial invasion take place with greater ease than in any other type.

9. In the remaining groups, namely the negative and involutinal, which were estimated as 14.2 per cent and 14.3 per cent, respectively, it is impossible to find any anatomic

cal alteration to justify their extirpation. It is here that incorrect diagnosis plays a leading role, and it is here also that the acumen of the historian is most greatly taxed. On the other hand, even though we find no pathological lesion either active or healed we are forced at times to abide by the statement made by the patient regarding acute attacks and agree with Urban Maes<sup>3</sup> when he says "there can be no doubt that there is a type of appendiceal disease characterized by repeated acute exacerbations of more or less severity, from which the patient recovers and in which there can be elicited all or part of the syndrome of the acute disease. The patients who have passed through attacks of this kind and who, thanks to a skilled physician or a beneficent Providence or both, as you will, have not perished in them, frequently have some residual evidence of the experience they have undergone and, in some instances, there is a complete return to normal." In spite of this statement the present writer feels that such remarks have a tendency to encourage needless surgery and may act as a shield to hide behind when seeking justification for an unnecessary operation.

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#### DISCUSSION

DR. M. PINSON NEAL, Columbia: I would like to ask Dr. Hertzler and Dr. Helwig how they would classify an appendix that does show the microscopic evidences of what is interpreted as chronic inflammation as seen in chronic hepatitis, chronic nephritis, true chronic myocarditis and similar lesions in other organs. To cast aside the term "chronic appendicitis," as used in such a manner, would necessitate a complete revision of the pathologic picture of chronic inflammation, as seen in this tissue as well as in the liver, kidney, heart and elsewhere. I, for one, am not ready to dispense with the histologic findings that we as pathologists interpret as representing evidences of chronic inflammation. Some authorities insist there is no such disease as ptomaine poisoning. However, there is an acute food poisoning which is commonly called ptomaine poisoning, though perhaps it should be given some other name; but the mere changing of the name does not eliminate the disease that is so called. The same applies to chronic appendicitis.

To talk of the cure of peritonitis and other complications of appendicitis is like bringing out a ghost of yesteryear, or more like an echoing voice from the past. We should work with an ambition at the present and a vision for the future in the prevention of peritonitis and the other complications of appendicitis rather than talk of the cures after they have developed. The one thing which each of us should carry home from this symposium is that a



little surgery at the right time is better than much or all that surgery can offer at the wrong time.

One of the pertinent questions that has been brought up is, "Who is responsible for the deaths in appendicitis?" It cannot by any means all be laid on the country doctors; a certain amount of the responsibility rests upon the hospitals with their organized staffs. We should look to many of our hospitals even in the large cities of St. Louis and Kansas City where there are staff orders to the effect that if the patient has a total white blood cell count of 10,000 or less, the intern or laboratorian need not do a differential cell count. Yet, those are the very cases where a properly made and competently interpreted differential leukocyte count should be made and in which it is of the utmost value. The doctor who depends on the total white blood cell count as a guide to direct him whether to operate or not is inviting disaster.

What is a white blood cell count? There are two types and they have entirely different values. One type is the total white blood cell count which is an index of the patient's resistance to an acute pyogenic infection but it does not tell you whether the patient has pus or an infection and most certainly does not tell you where it is. The other type is the differential leukocyte count with its neutrophil percentage, which is our one reliable index to the presence of a pyogenic infection. When the differential count does not indicate immediate surgical intervention, the count should be repeated at two to three hour intervals and charted so that each successive count may be measured by contrast with the preceding one. To show this to its best advantage, we use the resistance line as shown on the Gibson chart. To cite a recent example of its importance: one of our colleagues in Columbia was taken with abdominal pain at 3 o'clock in the afternoon. A differential blood cell count at 4 o'clock showed 65 per cent polymorphonuclear neutrophils. At 7 o'clock, just four hours after the onset, he had a neutrophil percentage of 92, and a total white blood cell count of only 7,000. This patient had an acute suppurative cholecystitis and was saved because that 92 per cent of neutrophils caused his surgeon to intervene at once. In an institution where they depend upon the total white blood cell count this patient probably would have died because he had a normal total white blood cell count. We can cite any number of such occurrences in our years of experience as consultants, and likewise many instances of saving the patient a needless operation, entirely because of the blood findings shown by the differential and total leukocyte count taken in conjunction.

The white blood cell count is much discussed and, unfortunately and without proper foundation, it is much cussed. The reason for this is because the count is too often carelessly done or its meaning not properly interpreted. I would like to see the editors of the medical periodicals refuse space to statements concerning leukocyte counts unless and until these articles are accompanied by the differential white cell percentages. When we have these done by trained, qualified laboratorians, and interpreted as they should be, then I would be willing to hear a discussion of the value of leukocyte count in appendicitis or in any other pyogenic infection.

DR. HUDSON TALBOTT, St. Louis: I have enjoyed very much this symposium on appendicitis. I agree largely with what we have heard but it seems to me some things were left unsaid, and perhaps always will be.

There is one feature of our work that seems to me

has been grossly neglected throughout the years, and we have scarcely heard it mentioned this morning. I believe we have failed materially in the critical examination of the bodies of our patients who die. Postmortem work is somewhat on the increase; we are doing a few more than in years gone by but too many of our patients who die are not thoroughly examined and the cause of death given on the burial certificate is entirely erroneous. The object of my remarks is to insist that we know more about the cause of death in these cases. I believe that the Ochsner treatment has been responsible for far more deaths than lives saved. I believe we should operate on appendicitis when the diagnosis is made. When a careful study of the symptomatology has been made this is far safer than the waiting treatment. I grant that there are cases where the waiting treatment is advisable, but we should be very careful about that. I am persuaded that the cause of death in many cases of appendicitis is pylephlebitis and that if the patient lives long enough multiple hepatic abscesses would result. Ofttimes you have observed it at postmortem and maybe there is peritonitis and you have not studied the portal vein. The surface of the liver looked normal but if a section were made you would find multiple abscesses. Waiting is dangerous. Certainly undue manipulation through a small incision may cause trouble. Sometimes we are too particular about a small incision and the appearance of the abdominal wall afterward. We manipulate our patients too much and perhaps add something to the possibility of the patient having portal vein infection. We should give due regard to such possibilities.

One other thing I wish to state. In abdominal infection we must have adequate drainage of course but secure it by placing patient in the proper position. Putting the patient to bed with a pillow under the knees and the head raised is good; raising the head to keep the infection away from the diaphragm is also good but putting the patient on the face is better and lets the abscess drain out instead of being a well and trying to encourage the secretion to work uphill like the wick draws oil out of a lamp. Upset the patient. Put him in face position. Keep him in face position. Keep the patient comfortable with morphine, but have the proper position so that the abscess may drain. Thus general peritonitis will be obviated in many cases where it would occur with the patient in the dorsal position.

DR. WILBUR SMITH, Springfield: I want to congratulate the Association on having such a good number of well presented papers. I never listened to anything more interesting. But there is one point that I wish to impress especially upon the members who have not the use of laboratories and hospitals and that is, instead of calling a surgeon, call a pathologist. I want to pay tribute to Dr. Neal for his work at Columbia. I think he has advanced our profession as much as any one I know. He did not tell you that they have decreased the death rate in appendicitis and in obscure abdominal conditions to a very low figure at Columbia. I want to make this statement: Columbia has the lowest death rate from appendiceal and abdominal conditions of any city in Missouri, and I think it is due greatly to Dr. Neal's work. We follow the chart he has just demonstrated. Our diagnostician has made some and we follow them absolutely. If the Ochsner treatment were followed with this chart as a guide and the blood test made every 6 to 12 hours we would have fewer fatalities and better results.

DR. OLA PUTMAN, Marceline: In this symposium

and the discussion there is one point on which all agree, that is that a certain percentage of appendicitis cases die. It is to the management of the extremely ill cases that I would call your attention; cases that begin to blow up a few days after operation. As Dr. Miller stated, the ones with tympanites showed the highest death rate. As a remedy for this complication one of the essayists mentioned colostomy, opening the gut and sewing a small drainage tube in place. This operation is more serious than the original one and at best drains only that kink of the gut in which the tube is placed. If the patient does get well there is no leakage when the tube comes out.

A much simpler thing to do that accomplishes more and without shock to the patient, is to puncture the gut with a small trocar, about the size of a spinal puncture needle. After the gut is punctured, the trocar is pulled up slightly so that the gut is against the abdominal wall and is left in place 12 hours. Adhesions form that prevent any leakage. If one trocar is not enough to relieve the distention several may be used at different places, and repeated when needed.

What kills these patients is not the temperature and toxemia of peritonitis but the distention that pushes up the diaphragm and embarrasses respiration and brings on a condition of acidosis. The use of the trocar is harmless and will at times save life, almost like magic.

DR. ALTON OCHSNER, New Orleans: I do not like to prolong this discussion but I must pay homage to the speakers of this morning, and I assure them that my trip to Joplin has certainly been repaid by this symposium on appendicitis.

I wish to say a word in regard to the conservative treatment. There is probably no condition in surgery which requires more individualization than appendicitis. These patients must be individualized and undoubtedly many lives will be saved by conservative treatment, as I think Dr. Miller's statistics showed this morning. One must remember that the indication for the use of conservative treatment is the beginning of localization, that there is no definite time limit at which this will occur, and that it varies considerably with different patients. I have seen patients who after twenty-four hours should have been treated conservatively and others in whom after seventy-two hours the conservative treatment was not indicated. It is an individual problem entirely. I believe the man who has not seen many of these cases and has not learned definitely to individualize them will have better results by performing an immediate operation. Unless one is seeing a great many of these cases and has learned to differentiate between them he will be unable to separate them properly.

In regard to the complications I want to emphasize the importance of subphrenic and culdesac infections. I am convinced that infections occur much more frequently in the culdesac of Douglas and in the subphrenic area than we imagine and that these infections usually subside without progressing to suppuration. One year we found that 10 per cent of our cases of acute appendicitis had evidence of subphrenic infection. Only 1 per cent went on to suppuration. I think it is relatively easy to diagnose these cases clinically. We suspect subphrenic as well as culdesac infection in all suppurative appendicitis, and frequent examinations are made in order to detect them.

Reference was made by one of the speakers to pylophlebitis and left-sided abscess in children. Left-sided abscess in about the same region as the

right-sided abscess in adults is infrequently a complication, but it occurs frequently enough that one should be on the lookout for it; it occurs practically only in children.

DR. WALTER BAUMGARTEN, St. Louis, in closing: Dr. Smith has taken the wind out of my sails. I had in mind to emphasize Dr. Neal's observation about the differential blood count. It is the abiding sin of omission of our hospitals that they are satisfied with the total leukocyte count, which is a half done job.

DR. H. A. LOWE, Springfield, in closing: I think we have clearly shown that appendicitis is a subject that is still full of interest. The death rate, as has been pointed out, is on the increase. The operative mortality is no better than it was ten or fifteen years ago. I pointed out that the highest death rate is between the ages of ten and eighteen. This is very significant to me. It means that in these children the treatment for the first few hours, many times for a few days, is generally with home remedies. For this reason I pointed out the necessity of an educational program, and I hope the Committee on Postgraduate Work will recognize the advantages to be had in such a program.

## HEADACHE: ITS CAUSE AND RELIEF \* 1

MILLARD F. ARBUCKLE, M.D.

ST. LOUIS

The discussion of headache in this paper naturally will be from the viewpoint of the rhinologist. It is of course true that many disorders of a rhinological nature are the bases for headache. The explanation for pain in the head in many of these pathological conditions has been worked out by numerous observers, notable among whom in our time was Greenfield Sluder. His studies in the fields of anatomy, physiology and pathology as well as in clinical medicine, have given us an insight into many problems which theretofore had been obscure or unexplained. By applying the information obtained as a result of his work we have been able to go even further in explaining the *modus operandi* in cases of rhinologic disease, both as to cause and treatment. This applies particularly to headache.

There are numerous types of rhinologic disease in which headache is a very important factor. It is also true that there are several other conditions involving neighboring structures which cause headache more or less severe in character and from which it is necessary and very important to differentiate headache of rhinological origin. At times this is not easy.

Some of the rhinological conditions which produce headache are, first and most frequent, disorders of the sinuses themselves due to in-

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

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fection or allergic reaction; second, syphilis, third, new growths. Still another cause for headache, which sometimes is diagnosed by the rhinologist, is impacted teeth. Many rhinologists believe in and teach the importance of deflection of the nasal septum as a cause of headache. I have never been convinced of the frequency of this relationship. Within the past year I had a patient who came to have his septum resected for the relief of headache but in whose case the cause of the headache was proved to be a brain tumor.

Infectious sinusitis may cause pain in several ways. Probably more often than otherwise the pain is due to interference with ventilation and drainage as a result of inflammatory reaction in the soft tissues. It is not at all uncommon, however, for this process to involve the bone. One of the interesting features in this connection is that at times an apparently very slight reaction may be followed by the most severe symptoms, whereas in other instances what apparently is a very marked reaction may not have any symptoms worth mentioning.

In cases of allergic sinusitis I am not sure whether the headache is due to local reaction or whether it is part of a general reaction. I am inclined to think it is probably more often general in nature with local manifestations, such as polypoid formation and increase in mucoid secretion.

Syphilis very often invades the cranial bones, frequently attacking those in the base of the skull and walls of the sinuses as gumma.

New growths in the sinuses are not infrequent. They may be malignant or benign and in the early stages it is not always easy to diagnose their presence or type without a biopsy.

In the short time allotted to me, I wish to pay special attention to one phase of headache with which rhinologists are often concerned. I refer to allergic sinusitis and my reason for stressing this is because it is my settled conviction that this condition has been frequently confounded with infectious sinusitis. It is only within the last very few years that our knowledge of allergy has justified such a statement.

In my estimation, the information which we have gained concerning the relationship of allergy to nasal disorder is the greatest and most important advance made in the field of rhinology since my acquaintance with the subject. In fact, cognizance of this relationship has revolutionized the practice of rhinology.

As every one is aware, the incidence of sinus disease is very high; it is probably equally frequent in both sexes and the time of onset may be anywhere from the first year of life to

extreme old age. It formerly was conceded that this disorder always was infectious in nature. Of course it goes without saying that many instances of acute empyema of the sinuses with inadequate drainage do occur. They are accompanied by pain, more or less severe, with damage or destruction to bone, nerve and other adjacent structures. In the presence of bone destruction complications, such as meningitis or brain abscess, are very likely to occur and the outcome is usually fatal. Septicemia is not uncommon as a result of involvement of the cerebral veins. The outlook here is also very bad. The only possible way that I know of by which we may avoid complications such as those just mentioned must be by early diagnosis and prompt surgical drainage. The advantages of intervention early in the course of disease rather than after unjustifiable delay are beautifully demonstrated in cases four and five herewith reported. Such cases, however, are in the great minority as compared with the far more frequent ones of chronic nasal disorder with long-standing, low-grade headache and other associated symptoms.

The acute cases are of recent onset, short duration and so definitely characteristic in their course that they are easily recognizable. It is well known that most cases of acute rhinitis are potentially if not actually acute sinusitis and a large percentage of these patients get well without ever seeing a doctor.

We now know that when infection is present in chronic sinus disease, as it usually is, it very frequently is superimposed upon an allergic reaction and in the great majority of cases will clear up without any particular treatment, provided the allergic reaction is encouraged to subside by proper therapy. In my early experience with allergy it was most difficult for me to realize what a large proportion of chronic nasal disorders are primarily allergic, with infection superimposed.

Since many individuals appear in the office of the rhinologist in search of relief from headache and numerous other symptoms thought to be due to sinus disease but many of which are not due to sinus disease, it is of the utmost importance that we study such individuals thoroughly before making a diagnosis and recommending treatment.

As stated earlier in the paper, one of the chief complaints of the individual suffering from sinus disease is headache; this frequently applies with either acute or chronic inflammatory sinus disease. The headache in this instance very often must be differentiated from that caused by brain tumor, hypertension, kidney disease, eye disorder, and numerous constitutional disorders of which allergy is a fre-

quent one and of which headache is a symptom.

A nasal discharge probably is next in frequency in the list of complaints. A differential diagnosis must be made between nasal discharge which is mucopurulent in character and due to infection alone; nasal discharge which is purulent and due to specific infection, such as diphtheria, syphilis, etc.; nasal discharge which is mucoid in character, a part of allergic disease and contains an increased percentage of eosinophils (vasomotor rhinorrhea or hyperesthetic rhinitis); and, occasionally, nasal discharge which consists of cerebrospinal fluid.

In many instances it is difficult or impossible by macroscopic examination alone to differentiate allergic rhinitis from infectious rhinitis. There is often a rather characteristic appearance of the nasal mucous membrane in an allergic individual; the mucosa is bluish-gray or pale pink, quite wet and so swollen as to be in contact with the septum. The secretion usually is mucoid and gray in contradistinction to the yellow color seen in infectious rhinitis. Unfortunately, the picture is not often so typical and it is nearly always necessary to carry out a most thorough study of the individual in order to establish a diagnosis. This study must include the careful consideration of the patient's personal and family history as well as his habits and idiosyncrasies; a microscopic examination of the blood and of the nasal secretions, and in many instances it is imperative that we discover his reaction to numerous substances with which he comes in contact, such as articles of diet, inhalants and emanations.

Eosinophilia is nearly always present to some degree in both nasal and blood smears, although occasionally temporarily undemonstrable. The degree of eosinophilia may vary from 5 to 70 per cent and there may be wide deviations in the counts obtained on the same patient at different intervals.

The above remarks are particularly applicable to those cases of headache in which hyperplastic sphenoiditis without suppuration is found; to cases of hypertrophic rhinitis and to cases in which polypoid formation occurs. The formation of polypoid tissue in the nose presents a question which has long been a puzzle to rhinologists. As every one knows, there is a marked tendency to recurrence after a most thorough and complete removal. Doctor Sluder, in times gone by, frequently remarked to me that if he only knew what caused the polyps he could cure the patient. Many of us now feel that polypoid formation in the nose is a part of the allergic process, whatever this may be. We have been able, time and again, to cause the disappearance and prevent the recurrence of polypoid formation by antiallergic

treatment without the application of any other form of therapy.

In former years we used to think roentgenograms which showed hazy sinuses definitely indicated infection of the cloudy areas. We now know that when a sinus appears hazy it may mean that it is filled with an edematous membrane of allergic origin. Lipiodol will give us most important information about the interior of the sinuses by demonstrating the variations in thickness of the lining membrane. A roentgenogram made during an attack of allergic sinusitis may show a membrane swollen to many times its normal volume. A similar plate made two or three days or a week later may disclose a membrane of normal or nearly normal thickness. In my experience, this sort of thing does not occur in the presence of a true pyogenic membrane. The roentgen ray diagnosis of acute frontal sinusitis with bone destruction is not always certain. I have seen cases in which expert roentgenologists could not with certainty make a diagnosis when the bone was already the site of an osteomyelitis in the early stage (fig. 9). Serial plates may be of some help.

If one searches through the literature, particularly that of the past century, it is interesting to note the similarity between the description of migraine as pictured by writers of note and the present-day descriptions of allergic headache. Frequent reference is made, especially in case histories, to individuals who had headache associated with symptoms such as asthma, hay-fever, eczema, urticaria, hives, etc., and who nearly always felt that their attacks were associated with the ingestion of certain food substances or with the inhalation of certain pollens or emanations. This association is mentioned so often that I have no doubt that the individuals described were sufferers from allergy.

Allergy, migraine and to a lesser degree sick headache, all have numerous factors in common, such as familial tendency, paroxysmal nature of attacks, prodromata and recurrence. It is my belief that in many instances the basis of migraine, sick headache, and almost surely the Sluder lower-half headache, is allergic.

For the relief of headache from infectious sinusitis numerous more or less satisfactory plans of treatment have been worked out and I will not take up your time going into them here. It goes without saying that the treatment of any disorder depends upon the correct diagnosis, therefore it follows that in the presence of syphilis the treatment is apparent. In the presence of tumor the treatment depends on the type of new growth present. Thus, for example, fibromata of the naso-



pharynx usually can be removed in their entirety without recurrence, whereas carcinoma of the nasopharynx is practically always fatal. Malignant disease of the anterior group of sinuses usually is fatal, although if detected early and given radical treatment, there is a good possibility for either very long relief or in some cases cure. New growth in the nasopharynx is practically always attended by headache as an early symptom with cranial nerve involvement coming on later. The task of making the diagnosis usually falls to the lot of the rhinologist. Early in the course of the disease this is not easy and repeated biopsy is occasionally necessary.

My experience has been that wide removal of malignant tumors by surgical means followed by the application of radon seeds gives better results than either surgery or radium alone. Surgical diathermy, it seems to me, has a very definite place in the treatment of lesions of this type.

Allergic headache, from what I have been able to learn of it, apparently has prodromata which are constant and quite definite. Among the first may be noted a partial obstruction of one side or the other of the nose, usually the side where the pain will later develop; unusual mental fatigue follows, with confusion or inability to concentrate. These aura appear one to three hours before the onset of pain. The pain usually is hemicranial and may be located either in the temple and in the eye, or in the temporal bone in the region of the mastoid process. It may radiate into the shoulder, or may at times be occipital. When the pain begins it is rather mild but soon increases to the point of severity. With the increase in pain the feeling of depression intensifies. Loud noises, conversation, bright lights, moving about, or any exertion or sudden fright, usually make the pain much worse. At its peak the pain is usually throbbing in character and is synchronous with the heart beats.

Such attacks nearly always are preceded and accompanied by constipation, and relief very often follows vomiting or going to stool. It also is true that relief and apparent abortion of an attack may occur if the victim can go to sleep while the attack is still in its incipency. Apparently, the position of the body in some instances has an important bearing on the degree of pain. Some individuals are only able to go to sleep when in a sitting position, while others find that the pain is rendered less severe if the head is turned to the unaffected side or if they sleep face downward.

Finding the offending material in allergic individuals is sometimes comparatively simple and at others the most long drawn out and dili-

gent search is required. It is sometimes necessary to hospitalize these patients and put them on a trial and error diet, beginning at zero. Housed in what is called an allergen-free room, divested of all personal belongings of every sort, they are allowed to sleep on specially ordered bedding and a most careful note is made of every article brought into contact with them.

The cutaneous tests usually are carried out early in the study of the individual case, and I would like to remark that this is a procedure which, because of the marked general reaction sometimes obtained, is not free from danger. The test solutions as supplied by the pharmaceutical houses are thought by many to be much less dependable in general than those freshly prepared. Many practitioners have done skin tests with more or less satisfactory results, according to the methods employed. It is acknowledged to be a difficult task in some cases even for those most expert to find the exciting cause of allergic manifestations. It has been my experience that unless the physician making the tests and doing the laboratory work in these cases has been specially trained for the work, it is almost impossible for him to avoid overlooking some minor details which may be the key to the situation, simple though they may appear.

When a sinus is the site of a focal infection demanding attention I am heartily in favor of operative interference if it is necessary to clear up the infection. On the other hand, I do not believe any case of chronic sinus disorder should be put up for operation without previous careful study for sensitization and, if this be present, proper treatment from an allergic standpoint. I have been able to prove to my satisfaction that with such study and management these chronic cases in the majority of instances will not require surgical interference and as a matter of fact the individual will be better off treated conservatively.

I should like to call attention again to the absolute necessity for careful history taking, with especial emphasis on the occurrence of hay-fever, asthma, eczema, hives, urticaria, etc., in individuals and their forebears.

There is so much work being done at present on the subject of allergy in every field, as is indeed entirely proper, that I feel we must be extremely careful lest in our enthusiasm we overlook conditions such, for example, as brain tumor and other serious disorders. It is of course true that the patient's environment, occupation, etc., may render satisfactory treatment in cases of allergic headache extremely difficult, but where one is disabled the results obtained fully justify the effort expended.



Fig. 1. Shows the sinus roentgenograms in Case 1. Left maxillary antrum is almost totally opaque, the right definitely hazy; left frontal sinus nearly completely opaque.

#### REPORT OF CASES

Case 1. A boy, aged 8 years, known to have sinus disease, was brought to me in the early part of 1931 to have his sinuses opened for the relief of sudden and total blindness which had existed for 24 hours. He was semicomatose and during the short period prior to his admission he had had convulsions, chills, fever, slight edema of the face and hematuria. The family history was negative except for nephritis on the paternal side. The past history was negative. He had had an acute upper respiratory infection about a month before I saw him, with bloody urine during the second week. Loss of vision followed a convulsion. When I saw him he had severe pain in the left frontal region with edema of the periosteum and marked tenderness along the floor of the frontal sinus. The possible existence of osteomyelitis of the frontal bone was suspected. Although drainage from the nasofrontal duct apparently was interfered with by the enormous size of the middle turbinate the nasal mucosa everywhere was covered with thick pus. The eyegrounds were normal. There was no evidence of meningitis; blood culture was negative; leukocyte count was 26,000. Roentgenograms of the sinuses showed haziness of the left maxillary sinus and left frontal sinus (fig. 1). Dr. Alexis Hartmann, who saw the patient at my request, made a diagnosis of acute glomerular nephritis with loss of vision as a result of cerebral anemia. It was his feeling that the kidney lesion was caused by the infection in the sinuses. Treatment of the kidney disorder was carried out by Dr. Hartmann. Treatment of the sinus infection consisted in nasal irrigations three times a day for a few days with a 10 per cent solution of glucose and the instillation into the nose once a day of a 0.3 per cent solution of mercurochrome. The most painstaking care was observed during the nasal irrigations to see that the patient's nose pointed toward the floor. This is essential in order to avoid forcing fluid into the eustachian tubes. At the end of two weeks the vision had returned to normal, the swelling of the middle turbinate had almost entirely subsided, there was very slight drainage, all tenderness in the sinus wall had disappeared, the kidney



Fig. 2. Patient reported as Case 2. The eye is so swollen as to be completely closed.

disorder had apparently cleared up and the patient left the hospital in good condition. In my opinion it is very rare that sinus infection, per se, causes sudden, bilateral blindness.

Case 2. A fourteen-year-old boy came into my office several years ago with severe pain in his head. When he came in his appearance was as seen in figure 2. He was profoundly toxic and appeared to be very sick. He was sent to the hospital for immediate operation. On admission the white blood count was 27,000. There was marked tumefaction with certain evidence of abscess formation, such as fluctuation, discoloration, etc. For this reason it was felt that immediate drainage was indicated. An incision was made below the eyebrow. The periosteum was elevated and much pus under pressure was released. There was a small fistula in the sinus wall above the inner canthus. A considerable area of the anterior wall and floor of the frontal sinus was removed. The anterior half of the middle turbinate was removed. The nasofrontal duct was enlarged and the ethmoid cells were cleaned out by the combined external and internal operation. A drain was left in the nose. The wound edges were drawn together but the incision was not closed tightly. Recovery was uneventful.

Case 3. A five and one-half year old girl was admitted to St. Louis Children's Hospital with the history that three days earlier she had complained of loss of appetite and prostration. This was soon followed by fever, a chilly sensation and vomiting. When I saw her the left eye was closed (fig. 3) by swelling and any ocular movement was painful. There was marked tenderness over Ewing's point. She had a copious purulent nasal discharge with





Fig. 3. Shows the orbital swelling in Case 3.

marked swelling of the nasal mucous membrane. Roentgenograms showed hazy left maxillary sinus from which a large quantity of pus was recovered by irrigation. The white blood count was 27,000. She was placed on nasal irrigation with 10 per cent glucose solution three times a day and instillation of mercurochrome solution once a day. Improvement was noticed within 24 hours and at the end of 4 or 5 days she was discharged from the hospital (fig. 4) to come back at the end of a month for observation of the sinus infection. This same treatment although less intensive was carried on at home with apparently complete recovery. In this case surgery was deferred after maxillary irrigation removed such a large quantity of pus, in the hope that recovery might follow intensive local treatment.

Case 4. A boy, aged 14, was admitted to Barnes Hospital in February, 1929, with swelling about the upper jaw and orbit, high fever and prostration. He was semiconscious and looked to be terribly sick. He had had numerous chills. The swelling extended over the bridge of the nose into the orbit on the opposite side (fig. 5). He had had trouble with an upper molar on the left side six months earlier; at that time he had the tooth extracted with a remission of the swelling and pain until about three weeks before admission. A fistula through the alveolar process led into the maxillary sinus. There had been no nasal discharge. Roentgenograms showed complete opacity over the left maxillary sinus and questionable opacity over the frontal and ethmoid cells on that side. The maxillary sinus contained thick pus. The white blood count was 22,500. A Caldwell-Luc operation was done and the sinus was found to be filled with pyogenic membrane and pus. There was slight remission of fever and pain with apparently some improvement in his general condition, but at the end of the third day his condition was decidedly worse (fig. 6). A roent-



Fig. 4. Case 3 five days later. Shows the remarkable rapidity with which case cleared up following intensive local treatment.

genogram at this time showed undoubted bone involvement in the region of the frontal sinus. An external frontal operation was done and a subperiosteal abscess found with destruction of the floor of the frontal sinus which was discolored and moth-eaten in appearance. A fistula through the floor of the sinus was found. The bone was quite soft and the sinus was filled with a pyogenic membrane. The affected bone was thoroughly removed and the bone excision was carried well into healthy tissue. The ethmoid cells were in a similar condition; they were cleaned away and through-and-through drainage into the nose was established. Prompt recession of pain and fever followed and recovery was uneventful (fig. 7). In comparing the progress and final outcome of this case with the following one, it will be seen that in this instance drainage was afforded much more promptly after the onset of the acute symptoms than was true in Case 5. Figure 8 shows this patient two years later.

Case 5. A boy, aged 20, was brought into Barnes Hospital on a stretcher in January, 1928, with the history that he had had a severe pain in his head for several weeks. He had had repeated chills and continuous fever. The right upper eyelid was red and swollen and there was marked tenderness to palpation over the maxillary and frontal sinuses. He had been treated for "neuralgia" during the period mentioned. On my first examination he was in a state of semistupor which apparently was rapidly increasing. A roentgenogram showed complete opacity of the right maxillary sinus, marginal infiltration of the left maxillary and complete opacity of the right ethmoid (fig. 9). It will be noted that the roentgenogram did not show enough evidence of bone change to warrant a diagnosis of frontal sinusitis



Fig. 5. Case 4. Swelling extends from left orbit across the bridge of nose into right orbit.



Fig. 6. Case 4. Three days later. Marked increase in edema about orbital region and throughout the left side of face.

by the roentgenologist. This practically normal appearance of the bone in acute frontal sinusitis is not unusual. There were no neurological signs of intracranial involvement. The white blood count was 16,600. At operation, which was done immediately, the bone was necrotic with a large fistula leading into the frontal sinus. The sinus was filled with pus and polypoid tissue and the bone on the posterior wall was slightly discolored. The patient's condition at this time was extremely bad and further operative work was deferred in the hope that sufficient drainage had been afforded. He improved somewhat for a few days only to develop fatal meningitis at the end of two weeks. No autopsy was obtained and for this reason we do not know the point of entry of the infection which caused the meningitis, but it is my feeling that where the posterior wall of the frontal sinus is necrotic thorough excision of the diseased bone should be carried out.

Case 6. This 45-year-old woman has been a patient of mine since 1912. She came in at that time because of severe frontal headache. The attacks always accompanied acute head colds and were very frequent. In addition to excruciating pain in her head, which required for relief large doses of morphine over a period of nearly a week, she had a profuse, purulent nasal discharge, both anteriorly and posteriorly. She had had these attacks since childhood, with associated otitis media on several occasions. Careful examination revealed chronic

suppurative sinusitis of all the sinuses on the right side. After a rather prolonged period of observation and nonoperative treatment she had, at different times during 1923, a Caldwell-Luc operation and an intranasal operation for drainage of the ethmoid and sphenoid sinuses after the method of Sluder. This included a high cut for better drainage of the frontal sinus. Since this operation she has been transformed from an individual who was a constant sufferer from headache to one who now rarely if ever has a headache. Previously when she had an acute cold she had to go to bed for a week to ten days and was disabled for from four to six weeks. Now when she gets an acute cold, which is seldom, one to two treatments are all that is necessary.

Case 7. This 26-year-old woman came in to see me in November, 1929. Her chief complaint was headache and frequent attacks of cold in the head. Her history was that she had been troubled for a number of years with severe attacks of frontal headache for the relief of which she had had two intranasal operations without results. In addition to these complaints she was troubled a great deal of the time with abdominal pain, said to be due to colitis and ovarian tumor. She had given up golf, horseback riding and other outdoor sports on account of her health. She was extremely nervous, high-strung and at times irritable. She had a very poor appetite and thought that most of the usual articles of diet disagreed with her. She was considerably underweight and had a mild asthma. Examination of her nose revealed a considerable quantity of thick mucopus in the right middle meatus





Fig. 7. Case 4 at time of discharge from hospital; still some slight swelling about left orbit.

on both sides. Roentgenograms showed a faint haziness over the right frontal sinus, the other sinuses being clear. Doctor Ives reported that the nasal smears showed numerous leukocytes a large number of which were eosinophils. At my request, Dr. C. M. Stroud placed her in the hospital for study. Here it was found that she was sensitized to numerous inhalants and to several articles of diet. We kept her in the hospital only long enough to add to and take away from her diet the offending articles and to expose her to the various inhalants and remove them from her presence repeatedly. We found that all the symptoms enumerated could be brought on by exposure and that they would clear up within less than twenty-four hours when she was protected from exposure to the substances to which she was sensitive. There was a very noticeable change in her mental status as well. In addition, she informed us that apparently the same thing happened with a leukorrhea which had troubled her for years. There was a definite family history in this case and we were very pleased to learn that when she went home she continued to be well as long as she followed directions and that her father was helped considerably by following out in part the régime recommended for his daughter. No local treatment to the nose was given. In addition to headache, this patient presented many symptoms of interest to the surgeon and gynecologist since at one time she had been advised to have her ovary removed.

Case 8. A trained nurse came to me over a year ago with a complaint of severe and disabling headache. She made the statement that she thought it was caused by sinus trouble. Careful study failed to reveal any abnormality in her sinuses. Neurological examination did not indicate any abnormality



Fig. 8. Case 4, two years later than figure 7, showing appearance of patient today.

of her nervous system. Study from the allergic standpoint brought out sensitiveness to chocolate and to one other food substance the ingestion of either of which would immediately bring on a severe and disabling headache. In addition to headache, this individual was extremely irritable and apparently unable to concentrate her mind on her duties. Since the discovery of the cause of her headache all these symptoms have disappeared and she has changed from an incompetent to a very competent and agreeable supervising nurse.

Case 9. This patient was a graduate nurse who had suffered for years from headache. It was thought for a long time that one of her sinuses was concerned in the cause of her headache but treatment failed to give relief. She was undernourished and anemic. It was discovered that she was sensitive to wheat flour and so long as she does not eat wheat flour she remains free from headache. On this régime she has gained several pounds and her general health is much improved. This patient had been seen for a numbers of years previous to this time by both Dr. Sluder and me. We had had the feeling that her headache was due to hyperplastic sphenoiditis but had been unable to control it by applications to the nasal ganglion.

Case 10. A lawyer, aged 32, came in to my office several weeks ago with the statement that he had had headache for two years. He had tried every form of treatment suggested and was "nearly crazy" with pain in his head. Dr. Stroud found him to be



Fig. 9. Roentgenogram of Case 5. Complete opacity of right maxillary sinus and marginal infiltration of left. Note that true condition of the right frontal could not be demonstrated.

sensitive to certain articles of diet and secured immediate and, to date, entire relief from his headaches by taking him off these offending substances.

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#### DISCUSSION

DR. W. L. POST, Joplin: I have been very much interested in this subject for several years. I feel more and more that the failures of the past in surgery of the sinuses, now that we know allergy, can be traced to that condition. I think allergy has a long way to go; certainly there is much in the technic that is to be approved. I believe this is as important a field as we have in the specialties today.

I was much interested in the discussion concerning the eye and the sinuses. I also think we are on the verge of a big improvement in the care of eye conditions, especially certain refractive conditions, through consideration of the sinuses. In my own practice I have a number of patients who as long as the sphenoid and ethmoid sinuses are kept open do not have to wear the correction. They go along for months then have a cold and come back wearing the glasses. In the future I think we will get away from many of these minor corrections.

I make it a practice to be very conservative with children. We must remember that the bones are not completely formed and we will get a much more severe cellulitis in a child from a minor sinus involvement than in an adult. Simply draining for a few days gives relief from the symptoms in many cases.

There is one subject that I think the eye, ear, nose and throat men should go into, and that is the relation of allergy to hearing defects. There is much to be learned here. The rhinologist is the man who will be the clearing house for headaches. Sooner or later all headache victims land in the office of the rhinologist and until we know allergy as well as we know the other possible causes of headache we will continue seeing patients who have had several nasal operations but they still have headaches.

DR. PAUL LUX, Kansas City: Dr. Arbuckle has presented a very interesting subject in such a way that there is little to add. One little thing might

help in the diagnosis especially of vasomotor rhinitis, and that is the Muck test, the Muck adrenalin sound test. First apply adrenalin gently to the inferior turbinate, and after ten minutes stroke it gently with a blunt sound. In a few minutes you will notice a white line on the inferior turbinate that will last about ten or fifteen minutes. That only happens in the allergic vasomotor type.

The type of headache that I think is interesting from the standpoint of the otorhinologist and the internist is the type described by Hawley, first in 1907 and then in 1911, which he called myalgia. It is due to tonic contraction of the sternocleidomastoid and trapezius muscles. At their attachment to the skull these muscles pull on the aponeurosis and cause frontal headaches. I have seen three cases that were operated on for sinus trouble but were only tonic contraction of the trapezius and sternocleidomastoid muscles. It happened that the symptoms were relieved for two or three months but that was due to the fact that the aponeurosis was cut. Patients of this type come to the internist and to the otorhinologist and some of them finally land with a cultist who may cure them.

The secret is to know about these tight muscles and how to relieve the tension. This is done by picking up the muscle between the thumb and forefinger and rolling it. After a few treatments of this kind the tension disappears and the headache ceases. Even a severe type of headache coming on at any time in the day or night will yield to this treatment.

DR. M. F. ARBUCKLE, closing: I am exceedingly interested in Dr. Luedde's remarks on the decreasing sensitivity of the retina and I think that undoubtedly is one of the fields where some profitable work can be done.

I did not speak of the endocrine gland disorders because I did not have time. I have no doubt that certain of the endocrine dyscrasias do have a bearing on headache, particularly the pituitary and thyroid, not to speak of the female generative organs.

Dr. Post referred to the persistence of symptoms of nasal disorder after treatment by every known method. That is one reason I have talked about allergy as I have in connection with the diagnosis and treatment of sinus disease. A considerable onus has attached to the name of the rhinologist for many years because of failure to secure satisfactory results in certain types of cases. I think it is true that many individuals who are allergic have been operated on. They are still allergic and still have symptoms but they may be relieved by the application of antiallergic therapy.

I am very much in favor of conservative methods in the treatment of sinus disease in children, but where it is needed operation should of course be done. I have had a few cases in which defective hearing was markedly affected by allergic reaction. Dr. Post thinks maybe we will be a clearing house for the allergist. I am already one.

I thank Dr. Lux for his discussion; he brought out some things which I did not know before.

### MAXILLARY SINUSITIS IN CHILDREN \*

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In our investigation of maxillary sinusitis in children we are at once impressed with the

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



fact that it occurs with much greater frequency than is generally supposed. Also that many cases require repeated examinations, and frequently the combined efforts of the pediatrician and the rhinologist are required to make a proper diagnosis.

Schaeffer<sup>1</sup> has shown that the maxillary sinus may be fully developed as early as the fourth month of fetal life, and we have reason to believe that inflammatory changes may occur in this sinus at any age after birth. The youngest child in our series was nineteen months old.

The etiologic factors involved in this disease are many: malnutrition, the exanthemata, influenza, infections of the tonsils and adenoids, mechanical obstructions in the nose, allergic conditions, metabolic disturbances, poor hygienic surroundings, etc. Some writers believe that removal of tonsils and adenoids predisposes to sinusitis. This would not hold true in the cases we have seen as about half of them have not had this operation.

Daniels<sup>2</sup> has shown in a striking manner the effect of malnutrition in the production of sinusitis in white rats. In her experiments, white rats fed on a diet deficient in fat soluble vitamin A very early developed a sinusitis, but when this vitamin was again added to the diet the sinusitis would rapidly clear up, provided the rats had not been kept too long on the deficient diet. Those fed a proper amount of vitamin A at all times did not develop sinusitis at all. We feel that malnutrition is one of the most important factors in the production of sinusitis in children.

The tendency in this day and age is to condemn the tonsils and adenoids as being the foci of infection of various illnesses in the respiratory tract as well as in other parts of the body, overlooking the fact that many of these ailments may have their origin in the maxillary sinus.

E. Watson-Williams<sup>3</sup> at the British Royal Infirmary found pneumococcic infection in the maxillary sinuses of a large number of children. He also found that in the seasons in which there was an increase in the number of sinus cases there was a corresponding increase in the number of pneumonia cases. The largest number occurred in children around the age of ten.

Darling<sup>4</sup> a number of years ago found inflammatory changes in the sinuses in more than 90 per cent of a series of pneumonia cases in which he performed necropsies. He concludes that the portal of entry of the pneumococcus in most instances is an accessory nasal sinus, the mucous membrane of which is probably fitted for the reception of the pneumococcus by an antecedent influenza or rhinitis.

Dean<sup>5</sup> reports cases of infectious arthritis in children due to paranasal sinus disease.

Fowler<sup>6</sup> in a series of one hundred cases of ear trouble in children found that the sinuses showed definite involvement in 86 per cent of the cases. He believes that sinus disease is a cause of recurrence and chronicity in suppurative otitis media and the progressive deafness resulting therefrom.

Chobot<sup>7</sup> in the study of one hundred cases of asthma states that 41 per cent had sinusitis.

Marriott<sup>8</sup> states that "in practically all cases of severe parenchymatous nephritis (or nephrosis) which we have observed there has been a staphylococcic infection of the nasal accessory sinuses, especially the maxillary."

Relative to the bacteriology of sinus disease it is agreed that the pneumococcus, staphylococcus and streptococcus are the most frequently encountered but occasionally the influenza bacillus, Friedlander's bacillus, micrococcus catarrhalis, and others are found.

The symptoms of maxillary sinusitis in children in most cases are not well marked. In fact, we might say that there is no definite symptomatology such as is usually found in adults. Many cases are discovered accidentally and doubtless many go undiagnosed. There are, however, some conditions found in children which will lead us to suspect trouble in the sinuses. For instance, a child may be undernourished, have frequent colds, stomach disturbances, attacks of fever, or other ailments, for which after a thorough examination there is no apparent cause. Perhaps a child has had his tonsils and adenoids removed but did not improve as was expected, or it is found that he has some trouble in the tonsils but not enough to account for his present state of ill health. In any of these conditions an investigation of the maxillary sinus is indicated.

Hetrick<sup>9</sup> believes that there is a likelihood of accessory sinus infection being not only a complication of but a component part of every nasal infection.

In the diagnosis of maxillary sinusitis in children there are four diagnostic procedures employed, namely: examination of the nose to determine the presence or absence of pus in one or both nostrils, transillumination, roentgenogram, and aspiration. We believe that the most accurate method of diagnosing this condition is aspiration. The roentgenogram and transillumination are at times at variance with each other and both have been found inaccurate when checked with aspiration. This is well illustrated in a series of slides that will be shown later.

Aspiration is easily done in children under gas anesthesia by inserting a sixteen gauge

needle into the antrum under the inferior turbinate and applying suction by means of a 10 c.c. syringe. It is determined in this manner whether the sinus contains air or secretions. It has been determined in recent years that even though no pus is aspirated from a sinus it may harbor an infection.

Dean<sup>10</sup> injected sterile normal saline into antra under strictly aseptic conditions, withdrew this fluid, cultured it, and obtained organisms in many cases. These sinuses had previously been irrigated and the washings returned clear.

Sewall<sup>11</sup> has gone a step further in that he not only cultures the normal saline solution withdrawn from an apparently normal antrum but also centrifuges a part of it and examines the sediment for leukocytes. He has found both mononuclear and polymorphonuclear leukocytes in specimens in which the cultures were negative. He concludes that mononuclear leukocytes found under these conditions indicate a low grade infection in the antrum, but that when polymorphonuclears are found it indicates an active process.

Ashley and Frick<sup>12</sup> in a series of cases conclude that a pathologic condition may be present in the antrum with only epithelial cells in the washings.

For treatment the cases are divided into the acute and chronic sinusitis.

Acute sinusitis is always accompanied by a cold in the head with the usual symptoms: fever, malaise, gastro-intestinal disturbances, nasal discharges, etc. Occasionally there may be pain in and around the sinus involved but as a rule this is not severe. The treatment consists of catharsis, antipyretics and instillation of drops into the nose which will permit aeration and drainage. A very satisfactory solution has been found for use in the nose consisting of two drachms of a 3 per cent solution of ephedrine in an ounce of a 10 per cent solution of neosilvol. Five drops are placed in each nostril every three hours. Occasionally an acute sinusitis may be of such severity as to demand surgical interference.

The treatment of chronic cases will depend upon the facilities available for handling that particular case. If a child is suspected of having a maxillary sinusitis and facilities are not available for doing an aspiration, then cod liver oil and ultraviolet therapy are indicated. Doubtless numbers of cases will clear up spontaneously without treatment, while others will respond very satisfactorily to cod liver oil and ultraviolet ray.

When a patient is suspected of having a sinus infection we recommend aspiration. If

pus is found, an opening is made in the antrum under the inferior turbinate and a rubber drainage tube is inserted, or the sinus is packed with iodoform gauze. In children between the ages of two to four years we use the iodoform gauze and remove it in four or five days. In older children we use a drainage tube and leave it for from one to two weeks and irrigate the sinus twice weekly through the tube. Cod liver oil and ultraviolet are recommended as valuable postoperative treatment. If the child has infected tonsils and adenoids they are removed at the same time. Dean<sup>5</sup> states that 80 per cent of their chronic cases of nasal sinus disease were cured by removal of tonsils and adenoids.

If no pus is found upon aspiration, normal saline solution or sterile water is instilled through the aspirating needle, withdrawn and cultured. Two or three cubic centimeters of a 10 per cent mercurochrome solution are then injected into the antrum and left. We believe that many cases especially of recent origin will receive much benefit from the mercurochrome solution.

#### SUMMARY

Maxillary sinusitis in children is of more frequent occurrence than is generally supposed.

It is a primary focus of infection for many diseases in other parts of the body.

The symptoms are rather obscure and the diagnosis difficult.

Aspiration is the surest diagnostic procedure.

Intranasal drainage under the inferior turbinate, with cod liver oil and ultraviolet light therapy are satisfactory procedures in effecting a cure.

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#### DISCUSSION

DR. PAUL LUX, Kansas City: There is no doubt that we are getting more and more away from operative interference in sinus troubles in children. Chronic sinusitis is the result of three factors: Allergy, metabolic dysfunction, nasal obstruction plus infection. Up to the age of five years a child naturally has a more or less obstructed nose because the intranasal structures are larger in proportion than the nasal cavity but after the fifth year of child life things seem to equalize themselves with the result that there is better aeration. Of course sinus disease depends a great deal on the fact that the sinuses are not properly aerated. If this is due to an allergic condition, allergy treatment will clear it up. The metabolic condition can be taken care of in that line. If the nasal obstruction in these young children is in the nasopharynx and caused by adenoids we find removal of the tonsils and an adenectomy with in addition trimming off the inferior turbinates and mucous membrane, the best method and then as time goes on the condition will clear up.

Aspiration by means of a needle I think is absolutely contraindicated. With suction you can get anything you want out of the maxillary sinus and that is the one most generally affected. In acute cases we sometimes have a lymphangitis that must be taken care of, especially if there is edema or a chance of orbital abscess, and of course if the acute cases are not cleared up they become chronic.

DR. M. F. ARBUCKLE, St. Louis: I am very glad to have heard Dr. Gilliland's paper. I agree with his statements in general.

There are many men who advise against the removal of adenoids and tonsils in the treatment of nasal obstruction or sinus disease in children. These same men do not decry the supplying of proper ventilation and drainage, or drainage of an abscess cavity anywhere else in the body, and for my part I can see no reason why a child should not have the same treatment that is accorded to an older person for a similar condition.

There is, of course, no doubt that sinus disease does occur in young children. I have practically discontinued the use of transillumination in the study of the sinuses because I have often found the information thus obtained to be inaccurate.

I have often been struck with the chronicity of diseases of the lower respiratory tract of infectious character which follow in the wake of similar lesions in the upper respiratory tract, and also with the beneficial effect on these affections after proper treatment of the infections in the upper respiratory tract. It has occurred to me that possibly the nephritis which follows scarlet fever may sometimes be caused by empyema of the nasal sinuses which in some cases is quite severe and persistent.

The use of lipiodol roentgenograms in the study of the sinuses has been a great aid in obtaining more exact information regarding the interior of the sinuses.

There has recently been considerable research work done on the efficacy of the various organic silver solutions which apparently has proved that these remedies are much less worth while as bactericidal agents than has been generally believed. I do use ephedrine and think it is valuable in cases where

there is interference with ventilation and drainage. I have never used a rubber tube for drainage after antrum operation. I think it is a foreign body which interferes with the normal healing process. I believe if an adequate opening is made at the time drainage will be provided without keeping a tube in the opening. The tube may become dislodged and find its way into the tracheobronchial tree.

In undernourished and anemic children whose condition is often the result of infection cod liver oil, sunshine and ultraviolet light are always indicated early.

Failure to show the presence of pus on the roentgenograms in acute cases is difficult to explain, but I think it must be because there is not sufficient pus to exclude the air from the sinuses. Lipiodol will help to clear up that situation.

Dr. Gilliland has mentioned allergic sinusitis. Since I have become more familiar with the cellular elements of the nasal cavities I have been astonished to find how often nasal affections are allergic and pleased to discover how frequently the sinus disorder, both the infectious and the allergic, will subside when the patient is put upon the proper anti-allergic treatment without any operative interference in the nose and with practically no local treatment.

I do not find it necessary to remove any of the mucous membrane of the lower turbinates in order to secure ventilation or drainage.

DR. O. S. GILLILAND, in closing: I do not want it to be understood that immediately we see a child with suspected sinusitis we aspirate. That child is thoroughly studied, put on treatment, observed by the pediatrician, all efforts made to clear up the sinuses, before aspiration is done. After that I believe that aspiration is indicated. I know that Dean, who has probably done more work on sinusitis in children than anyone in the United States, advocates aspiration, as do many other rhinologists.

Relative to trimming off some of the tissues of the inferior turbinate, I think the idea is good but I obtain the same results with the nasal dilator. I have a nasal dilating instrument that I use in every case of tonsil and adenoid operation that I do. That simply fractures the inferior turbinate against the lateral nasal wall and gives freer passage of air into the nose. If the child or adult has hyperplasia then I think the turbinates must be trimmed.

Lipiodol is excellent. I have not tried it in young children but in older children and adults it gives valuable information.

This rubber drainage tube has a collar on it and that collar fits into the antrum and will come out with difficulty. In fact, it takes quite a little pull so I do not think there would be any danger of losing it. An adequate opening is of course essential but I have found both in children and adults that what I thought was an adequate opening was not enough, so for that reason I like a drainage tube left in the sinus.

Allergy is increasingly important, both in adults and children. There is much work yet to be done on allergic conditions. I have seen allergic reactions in children that for some unknown reason would clear up in two or three years without our doing anything. But I believe in cases of allergy no operative interference is indicated unless there is hyperplasia. I believe the hyperplastic tissue must be removed in order to furnish proper aeration.

## BASAL METABOLISM IN MIDDLE EAR CATARRH \*

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According to Gray, one person of every two hundred suffers from chronic progressive deafness. And it is one of the most hopeless conditions. Few are cured. Mostly, the cases progress in spite of every treatment. The sad and familiar picture is that of the deaf patient, who has consulted one doctor after another, submitting to a tonsillectomy here, a turbinate operation there, and inflations of the eustachian tubes everywhere, and still his deafness progresses and his head noises remain.

Improvement in our treatment of deafness must come from a better understanding of the cause. The present tendency is to look for the cause in the general condition of the patient as well as in the neighboring regions of the nose and throat. Definite proof has been offered by Bryant,<sup>1</sup> Drury,<sup>2</sup> Lawrence,<sup>3</sup> and others that at least in some cases chronic progressive deafness is associated with malfunction of the endocrine glands.

We divide progressive deafness into two forms: (1) otosclerosis, an hereditary condition characterized by new osseous formation in the bony capsule of the labyrinth, and (2) catarrhal otitis which is an inflammatory condition of the ear. In past years considerable work has been done upon the relationship between glandular malfunction and otosclerosis; less upon the possible endocrine etiology of catarrhal otitis which forms the larger proportion of the cases of progressive deafness.

With this in mind, I have studied the basal metabolic rate in a series of forty-six cases of deafness of catarrhal type. No cases of otosclerosis were included unless combined with the inflammatory type. The results were:

Normal (between + 10 and — 10)	- - -	22
Above normal (higher than + 10)	- - -	4
Below normal (lower than — 10)	- - -	18
Impossible to obtain accurate readings	- - -	2

Of these, the eighteen cases with basal metabolic rate below normal were further studied and where possible a definite diagnosis of glandular deficiency was made.

Hypothyroid cases predominated. As to symptoms, these fell into three groups: (1) those characterized by general symptoms identical with those of neurasthenia; (2) those with local manifestations of inflammation in the mucous membrane of the respiratory tract and ears, and (3) those presenting no symp-

toms other than those referable to the ears. In this last group there was nothing suggestive of glandular malfunction and the diagnosis would not have been made except for the systematic taking of the basal metabolic rate in all cases of deafness.

The group of patients in which general symptoms predominated gave the typical motley array of unassociated symptoms of neurasthenia and would have been diagnosed as such if not explained on an endocrine basis. They complained of exhaustion, physical or mental or both. They described in detail many pains. These were of the rheumatic type in the joints or muscles; or abdominal, associated with stomach trouble and constipation; or in the chest; at times they took the form of headache. These patients inclined toward melancholia; some had special forms of anxiety or phobias. They slept poorly. My experience leads me to believe that deafness associated with neurasthenia is apt to be deafness of endocrine origin.

### REPORT OF CASES

Case 1. Rev. D. R. R., thirty-nine years old, a farmer and itinerant minister, suffered from deafness and head noises. Both of these had been progressing intermittently for twenty years. They were worse now, he thought, because his general condition was not good. He felt at times that he was near a mental or physical collapse. He could no longer do hard physical work because it brought on a severe pain in the back of his head and neck; the use of his arms seemed especially apt to bring on the pain. This was severe enough to have forced him to turn over all farm work to a helper. He was subject to dizzy spells of short duration which had never been severe enough to cause him to fall. He suffered from extreme constipation and indigestion; heavy food seemed to cause his stomach to bloat and to give him a smothering sensation. He noticed in preparing his sermons that mental effort was more difficult than it had formerly been. He realized that he worried too much. As an example, he told of his fear of driving in town. Coming in from his farm he could hardly drive because of an intense dread of the difficulties he felt would beset him in town traffic. Once arrived, however, the fear left him and he drove without trouble.

When questioned, he stated that he was no more subject to head colds than the average person though when he did have one his hearing and head noises were much worse. Most of the time he had a hacking cough and expectorated a clear mucus.

A physical examination by his family physician had revealed no trouble of importance.

On examination of the ears, hearing was below normal. In the right the spoken voice was heard at six feet, in the left at three feet. Both were improved by inflation, the right more than the left. The lower tone limit was raised in both ears. The right ear drum showed no pathology other than opaqueness; there was a large chalk patch in the left. The eustachian tubes were partially obstructed. The nose was normal in appearance. The tonsils had been cleanly removed. The metabolic rate was minus 22 per cent with a pulse of 50. Laboratory findings further suggested hypothyroidism.

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



After four weeks of treatment with thyroid extract the basal metabolic rate was minus 8 per cent. In the right ear the spoken voice was heard at twenty feet. The left showed less improvement, the spoken voice being heard at six feet. The tinnitus was greatly improved in the right ear but remained about the same in the left. The general symptoms were improving. It is to be expected that there will be still further improvement as the basal metabolic rate is further raised.

Those cases with symptoms localizing in the respiratory tract and ears were subject to repeated colds, with the deafness and head noises worse during each attack. They complained of paroxysms of sneezing with much watery discharge and of the nose stopping up. When lying down on one side, that side of the nose which was down was most obstructed. Bronchitis was frequent.

Case 2. Mr. B. F. B., an apple grower in the early sixties, consulted me shortly before leaving on a visit to Colorado. His presenting symptoms were deafness and head noises which he feared might be aggravated by the high altitude of the mountains. For several months he had noticed difficulty in understanding conversation when several were talking. His head noises were constant but grew worse when he had a cold and were accompanied by the sensation of his ears stopping up. These colds were frequent. He was hardly over one before he caught another. The head cold was usually accompanied by a bronchitis with irritating cough. He complained of constipation of high degree and of feeling below par in every way.

On examination hearing was below normal in both ears, with the limit for lower tones raised. The ear drums were retracted and the light reflexes broken. The mouths of the eustachian tubes were found edematous when examined with the pharyngoscope. On inflation with the catheter the tubes were found partially obstructed and contained mucus. In the nose there was much muco-watery secretion; the turbinates were boggy and of a peculiar bluish color. The basal metabolic rate was minus 34 per cent; the pulse 64. Other laboratory tests indicated hypothyroidism and thyroid extract was prescribed.

The patient returned from Colorado two months later feeling fine. His hearing was normal in the left ear and much improved in the right. Likewise the tinnitus had disappeared from the left and was greatly diminished in the right. He was no longer subject to colds and his general condition was improved. This patient's home was in the country far from a druggist. On several occasions he ran out of medicine and it was some time before he could get into town for more. At these times, he reported, his colds and ear symptoms returned. As long as he continued treatment, however, his condition remained good.

The last was that group presenting no symptoms other than those referable to the ear, deafness and tinnitus. Upon being questioned they denied such symptoms as might have been expected; i. e., weakness, constipation and dry skin. Yet they showed hypothyroidism.

Case 3. Mr. A. W., thirty-nine years of age, com-

plained of deafness and tinnitus in both ears which had been slowly coming on for eight or ten years. Both conditions were aggravated when he had a cold. He thought he was no more subject to colds than the average person. With the exception of occasional momentary dizzy spells he felt well.

On examination there was found reduction of hearing in both ears, especially for low tones. The drum membranes showed slight retraction. On rhinoscopic examination, the posterior extremities of the lower turbinates were edematous. Both antrums appeared dark by transillumination but with irrigation the wash returned clear. Pus was expressed from the tonsils. The basal metabolic rate was minus 19 per cent, temperature 97.2, pulse 60. A diagnosis was made of chronic catarrhal otitis with diseased tonsils and hypothyroidism. Tonsillectomy was performed and thyroid extract prescribed.

Six weeks later the patient enthusiastically reported that his hearing had returned to normal and that his tinnitus had entirely disappeared. On examination, however, the hearing of both ears was still slightly below normal for the whispered voice though considerable improvement had occurred. The posterior edema of the lower turbinates had disappeared. The basal metabolic rate was minus 6 per cent. In this case no doubt the removal of the diseased tonsils was as important a factor in treatment as the relief of the hypothyroidism.

These cases have not been under observation long enough for the final results of the treatment with gland extract to be known. In most of the mild cases of deafness there was decided improvement in hearing from the first. These were for the most part the recent cases although one patient who had had a mild type of deafness and tinnitus intermittently for over twenty years improved almost to normal. In none of the advanced cases with deafness of high degree and with inner ear involvement was improvement in hearing obtained. Tinnitus was improved in about one half of those treated, most of these being the early cases. One patient observed a distinct change in the character of the tinnitus but the new was equally as annoying as the old. The respiratory symptoms cleared up readily under treatment as did the general symptoms. The patients became more fit, mentally and physically, their pains disappeared and they became more cheerful.

#### CONCLUSION

The basal metabolic rate is below normal in a fairly large percentage of cases of catarrhal otitis. In the majority of these cases with low basal metabolic rate a diagnosis of glandular deficiency can be definitely made. In such cases, treatment if instituted early offers good results.

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#### DISCUSSION

DR. M. F. ARBUCKLE, St. Louis: I cannot allow this opportunity to pass without saying that I am much interested in Dr. Smith's paper, especially in the cases of hypothyroidism. It is surprising how many individuals who go to the rhinologist do have lowered function of the thyroid associated with vertigo, tinnitus and deafness, and also it is very gratifying to see the improvement in these cases. Many of these individuals are greatly benefited or entirely relieved by treatment along the lines suggested by Dr. Smith.

DR. PAUL LUX, Kansas City: I have been very much interested in the question of dysfunction of the internal glands in relation to otitis media. It is true we can see how this otitis media would improve under treatment in these youngsters just as the nasal accessory sinuses, because I sometimes feel the middle ear should be considered an accessory sinus of the nose. Some cases do have nervous symptoms and it is a question whether these things are a forerunner of the disease or the result of it. I am inclined to think they are the end-result. In early cases I think they might get some good from thyroid, but in late cases where adhesions form and changes have taken place I do not think thyroid would do much good.

### THE GENERAL PRACTITIONER; GUARDIAN OF PUBLIC HEALTH\*

JULIUS LINGENFELDER, M.D.

HERMANN, MO.

Some day it will be realized that Medicine cannot fulfil its mission without the assistance that Philosophy alone can give.—A. Stuart M. Chisholm, M.D., Bennington, Vermont.

Extraordinary circumstances might well require extraordinary measures. Is it too much to expect that, after the failure of the powers that be to heal the ills of our time, the patient as a hope of last resort will turn for help to the friend of his less sophisticated days and seek the advice of the kindly family physician?

The facts are beyond dispute; the whole of humanity is in a state of anxious uncertainty and embarrassed turmoil. And the measures so far undertaken to relieve the situation have been of no avail. The State has exhausted its powers in vain attempts to establish "law and order." The church has failed to give us "peace." The school has fallen short in its endeavor to teach the young the right concept of how "to be free yet reverently bound to law." (Anna Garlin Spencer.) And the baleful spirit of up-to-date individualism—arising, as it does, from the ragged crevices of hateful suspicion and murderous competition permeating our social and economic atmosphere—is all too evident to permit of any hope for peaceful progress.

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.

Who would want to deny it? With all the great and justly celebrated instrumentalities of power and progress at his command man has as yet not learned to curb his passions and control his desires. Instead, he has amply demonstrated his incompetence, to speak with Herbert Hoover, our President, "to build . . . a human society out of an economic system." And as a consequence there is even in this most favored land of ours widespread misery and actual cruel want in the very midst of plenty. There is crime in high places and low. There is pitiful ignorance of and criminal indifference to the most essential requirements of public welfare: an ignorance and an indifference that mark the path of slow but unmistakably progressive disintegration of society, spell disquietude and serious dissatisfaction for the masses of the people and in the end are bound to invite, if not checked in time, disaster greater and dishonor more humiliating to the human race than any that has ever been experienced in the history of mankind.

To show the ways and to devise the means of counteracting this sorry state of affairs falls to the lot of the wise physician. By reason of the solemn obligations and far-reaching responsibilities of his noble profession, his is the duty before all others to proclaim the absolute necessity for all men and women enjoying the privileges and bearing the burdens of present-day communal life to study with closest attention and to interpret without fear or favor the working of the eternal, immutable, inexorable laws of life and health in their bearing on success or failure of human endeavor. His, again before all others, the faculty to observe and recognize the essential unity and inevitable interdependence of all mankind. And his the priceless privilege to elaborate, with the aid of many others, a truly modern work-a-day philosophy that bids fair to give relief to suffering mankind by bringing about what fire and the sword have failed to accomplish, by "making the world forever safe for real, genuine democracy," i. e., for "such an organization of society as will enable men to respect themselves and so justify them in respecting others" (James Russell Lowell).

To his discerning eye the prevailing unrest and world-wide dissatisfaction with all their dire consequences are but the outward manifestations of a grave deficiency disease, of a serious lack of equilibrium in the modern human mind, and as such the legitimate object of the careful scrutiny and sympathetic interest of the conscientious physician, the trusted guardian of public health.

He will trace the painfully bewildering evils of the time still further back to their original



primordial cause, to the rather general misconception of the deeper purposes of our human life, and to our faulty efforts to achieve these purposes. And, finally, to justify the hopeful expectations of his time, he will pronounce the one supreme and in the end infallible remedial agency for the eradication of those evils, i. e., the establishment of a truly modern system of education leading to the formulation of such simple yet compelling rules of human conduct as will persuade the individual to form an independent judgment in all things concerning public weal or woe, and make him act in full accordance with the dictates of his conscience. Thus will be laid the foundation for the indispensable precondition of that source and well-spring of all true progress, of which George Washington has said: "In proportion as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened." \*

Based on the triple foundation of wisdom gained from the history of mankind, a clear conception of the moral value of modern scientific truth and, last but not least, enlightened individual perception of the principles of right and wrong, these rules will readily adapt and recommend themselves to future legislative sanction through the convincing language of a common "Code of Civic Ethics" that in emulation of the well-tried civil service principle of personal fitness for the job confers upon the individual with the absolute, incontestable right to his own individual opinion the equally absolute indisputable duty to act in all things in conformity with the principles of truth and justice.

Thus will in the happier future faithful service be exchanged for fair return; the fallacies of arrogant hypocrisy supplanted by the unpretentious efficiency of honest purpose; the dignity of labor enhanced beyond the glories of material success; public interest for once made preponderant over personal advantage. In short, the true and lasting basis will be laid for ever higher cultural development, for social peace and vital economic readjustment just as soon and just as far as man has learned to keep his individual civic rights wisely balanced by his corresponding individual civic duties, and thereby attains the fair and equitable measure of civic dignity and worth—the modern "Standard of Citizenship," the essential precondition and imperative prerequisite of national as well as international peace and progress.

A grave depressing fear is overshadowing the consciousness of mankind. Today, as ever before, the forces of progress and health are pitted in an everlasting struggle against the

forces of confusing retrogression and final destruction. Are we, as physicians, interested in the outcome? Are we aware of our duties in the case at hand?

Of the struggles of his time Abraham Lincoln said: "The struggle of today is not altogether for today. It is for a vast future." Likewise in our attitude toward the problems of contemporary life lies the decisive factor in determining the future of mankind.

And again Lincoln has said: "If destruction be our lot, we must ourselves be its author and finisher. As a nation of freemen we must live for all time—or die by suicide!"

He knew that man must be *free* to live, free in body, mind and soul.

Are we as a people free as Lincoln understood the term? Or are we slaves to our passions and ambitions, yea even to the prejudices and commands of other unwise, unfair men? Are we entitled to the blessings of eternal life? Or are we to die by shameful suicide?

To make man "free, yet reverently bound to law," a proper conception of life, of health, of progress is required. Can and will the physician of the modern world supply this basic need of the hour?

This is the real question of the day.

Are we ready for the question?

Remember, physicians, remember:

One bugle note our only battle call: Duty—that is all.

WEIR MITCHELL, M.D.

#### DISCUSSION

DR. J. S. SUMMERS, Jefferson City: I have enjoyed this paper, especially because Dr. Lingenfelder is from a town in my councilor district. We think a great deal of him. This excellent article should have been read at the Council meeting yesterday when we were talking about what the medical profession should do to guard the public health. Dr. Lingenfelder said that the churches and the schools with all their education have not been quite able to cope with the question of public health. Our public health educational work comes from various sources, as agencies of lay social societies and other organizations who are anxious to help in public health educational work. Many of them are working partially in the dark. There is no real leadership. Much of the teaching is antagonistic. There is a lack of cooperation and coordination. They do not get the most out of energies spent. It makes it difficult to get anywhere with a public health educational program. It is like a bunch of men carrying brick and making a pile over here, and on the other side a bunch of men carrying the brick back again; or, like Mark Twain's man who had his intestines shot so full of holes by the Indians that in a land of plenty he was about to starve to death because the food would run out through the holes as fast as he could put it in. These various agencies are willing and anxious to be advised and directed by the medical profession but the medical profession has been slow in accepting this leadership. That is the trouble with our varied public health educational work. We need a more complete and harmonious cooperation of the doctors with the public.

The medical profession should be the leaders and advisers of public health educational work. There is none of the profession that gets so close to the public as the general practitioner. Dr. Lingenfelder's address has put a number of good points into my mind as to how to carry on this educational program in educating the public on the correct science of health and of medicine.

## **MASSIVE, SPONTANEOUS HEMORRHAGES INTO THE VITREOUS HUMOR, AND IRITIS BOTH EYES, ACCOMPANYING THE SCHONLEIN-HENOCH'S SYNDROME**

REPORT OF A CASE \*

JOS. W. LOVE, M.D.

SPRINGFIELD, MO.

Massive, spontaneous and recurrent hemorrhages into the vitreous of young people, so-called recurrent intravitreal hemorrhage of adolescence, or juvenile vitreous hemorrhage, to which no cause is directly assignable, is a well known clinical entity.

Von Graefe in 1855 appears to have first separated the cases under the title recurrent vitreous hemorrhage. Eales in 1880 published the first comprehensive description of the disease with case reports; since then the disease has often borne his name. In Eales' series the patients were generally young adult males ranging in age from 14 to 20 years, and according to him the patients were usually below par physically, were liable to constipation, irregularity of the circulation and epistaxis.

While subsequent observations of the affection have added much to the knowledge of the clinical features of the disease the etiology and pathology of the condition have apparently not been wholly cleared up in all cases.

Since Axenfeld and Stock affirmed that a hemorrhage into the vitreous due to the erosion of a tuberculous deposit in a vessel wall may occur without evident lesion of the iris or choroid the opinion has widely prevailed that the cases of so-called idiopathic intravitreal hemorrhages of adolescence were probably due in most instances to a tuberculous process in which some large vessel of the ciliary body was eroded.

Zentmayer, admitting tuberculosis as a possible factor in the etiology of some of the cases, thinks the condition is not always due to this cause and believes that some cause other than tuberculosis is necessary to account for it, and expresses the opinion that the outstanding and striking syndrome suggests some disturbance of the ductless glands.

Young, of Roanoke, Virginia, while he believes that recurrent hemorrhages into the vitreous are evidently the result of one or more of many widely different pathological conditions, nevertheless suggests that blood calcium deficiency should be kept in mind as a possible cause since calcium therapy in one case in his experience seemed not only to prevent recurrences but very much improved the general condition of the patient.

Zentmayer, however, attributed the calcium deficiency observed in Young's case to a disturbance of the functions of the endocrines and thought the symptoms pointed to the adrenals as the primary cause and for that reason favored glandular therapy in the management of these cases.

Edward Jackson, after mentioning tuberculosis, acute infectious diseases and possibly endocrine disturbances as admitted causes of recurrent hemorrhages into the vitreous of young people, expressed the opinion that the condition doubtless occurs in many diseases that have not yet been suspected.

The case here reported is one characterized by sudden, massive, spontaneous and recurrent hemorrhages into the vitreous, with iritis of both eyes, occurring in an adolescent male coincident with the appearance of the typical symptom-complex of so-called Schönlein-Henoch's purpura.

Schönlein in 1832 described a disease observed by him in adolescent male subjects, characterized by purpuric hemorrhages into the skin of the extensor surfaces of the upper and lower limbs, accompanied by muscular pains and arthritic swellings of the joints of the extremities, with moderate fever, sometimes sore throat and epistaxis, to which he gave the name *peliosis rheumatica*. Schönlein reported the disease as especially prevalent in young males affecting as a rule individuals between the ages of 15 and 25 years. It was said by him to be more frequently observed in delicate individuals and in those whose vitality had been reduced by previous disease.

The name applied by Schönlein to the disease was manifestly intended to imply its supposed relation to rheumatism, which supposition was apparently confirmed by subsequent observers since the condition soon became generally designated *purpura rheumatica*.

Henoch in 1874 described a form of purpuric disease appearing especially in children which was similar to that described by Schönlein as to the distribution of the purpuric hemorrhages into the skin but in which the arthritic swelling and joint symptoms were less marked, and which had added symptoms of nephritis and abdominal crises of pain and

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.



colic. In course of time cases manifesting some or all of these rather doubtfully related conditions came to be grouped under the general title of Schönlein-Henoch's purpura, and are now frequently so designated.

These cases are especially to be distinguished from purpura hemorrhagica, which disease is associated with definite and characteristic blood changes resulting in prolonged bleeding time and noncontractile blood clot, the main cause of the hemorrhages being assigned to blood platelet deficiency. This is not true of Schönlein-Henoch's purpura in which the blood is normal, no manifest disturbance of the factors concerned with blood coagulation being present.

#### REPORT OF CASE

A farm lad, aged 14, living near Competition, Mo., was referred by Dr. T. H. Casey, Lebanon, and admitted to St. John's Hospital on December 23, 1930. The cause of admission was the sudden onset of blindness of both eyes accompanying a severe bilateral purpuric eruption of the skin covering the extensor surfaces of the forearms and legs, with arthritic swellings, pain and tenderness of the joints of both upper and lower extremities, with moderate fever. Patient seen in consultation with Drs. A. L. Anderson and M. C. Stone, of Springfield.

The boy was one of four healthy children with no history of familial bleeding. Previous health good until an attack of pneumonia about one year previously attended by a protracted convalescence. Since then the boy seemed distinctly below par physically, manifesting circulatory disturbances, increased heart action, disturbed digestion, constipation, but without manifest increase of temperature at any time.

The onset of present illness, four days previous to admission, was marked by a chill, vomiting, pain in the muscles of the back followed by pain and tenderness of the joints. The following day the affected parts became swollen, reddened and hot, the appearance of the joints being that seen in the milder forms of acute articular rheumatism. Coincident with the affection of the joints a purpuric skin eruption became manifest, first small, petechial and discrete in character, but later tending to coalesce in certain areas where it became confluent and formed numerous patches the size of a silver dollar and in some places as large as the palm of the hand.

Vesicles of considerable size later appeared on the skin in many places, particularly about the knee and elbow joints, some filled with clear and others with blood-stained fluid.

On the morning of the third day after onset the patient observed that he could not see with his right eye. The eye ached, was intolerant to light and tears flowed freely. The following day the vision suddenly failed in the left eye and the patient became so intolerant to light that the room had to be constantly darkened for comfort.

Examination of the eyes on admission revealed bulbar conjunctivae of both eyes, markedly suffused and tearing. The tension of the globes of both eyes appeared slightly increased as tested by finger palpation. The pupils were slightly reduced in size with no perceptible pupillary reaction to strong light, and no fundus reflex could be obtained from either eye with the ophthalmoscope.

Vision at this time was reduced to hand move-

ments in the left eye, even light perception being denied in the right, the eye first affected.

Under a mydriatic the right eye showed an irregularly dilated pupil, with several adhesions of the iris to the lens capsule which repeated instillations of atropine, 1 per cent, failed to break up. Diffuse brown pigment deposits were discernible on the anterior surface of the lens capsule where the iris margin had been drawn away by the mydriatic. While the pupil of the left eye dilated evenly and well under atropine, pigment deposits on the lens capsule similar to those observed in the right eye were also discernible.

Even after full dilation of the pupils no details of the fundus in either eye could be made out with the ophthalmoscope, but large lead-colored masses in the vitreous chambers of each eye were clearly discernible by oblique illumination.

The sudden onset of the blindness, the presence of the massive vitreous opacities with iritic adhesions and pigment deposits on the lens capsule, indicated intravitreal hemorrhage with iritis. There was no hemorrhage into the skin of eyelids or the tissues of the orbit, and the iris and cornea of each eye were free from blood stains.

There were repeated paroxysms of severe pain in the eyeballs which were not allayed by cold compresses first applied, but which dry heat applied later seemed to alleviate.

Inspection of the throat revealed a mild acute pharyngitis, culture from which showed the presence of what was reported from the laboratory to be indifferent streptococci and staphylococci; the tonsils showed no gross signs of acute or chronic disease and there was no evidence discernible of dental caries or chronic disease of the nasal sinuses.

Dr. Stone reported the result of urinalysis to be essentially negative for albumin, casts and free red blood cells. The blood was also reported normal both in respect to the formed elements and plasma constituents. The bleeding time was normal and no manifest disturbance of the factors concerned with blood coagulation was reported.

Dr. Anderson after physical examination of the patient expressed the opinion that there were no signs nor symptoms of pulmonary tuberculosis, organic disease of the heart, or nephritis and he diagnosed the case as Schönlein's purpura rheumatica.

Since it was believed that tuberculosis and syphilis could be clinically ruled out as an etiologic factor, neither a tuberculin skin test nor a Wassermann blood test was made, and no estimation was made of the blood calcium content.

In view of the apparent ineffectiveness of specific treatment in this disease the management of the case was carried out mainly on an expectant plan, chief attention being given to the measures for the relief of pain, with an abundant allowance of fresh fruit juices, adequate fluid intake and a nourishing diet, together with the protection of the inflamed joints and appropriate treatment of the ulcers resulting from the sloughing of large areas of necrotic skin which subsequently took place.

The patient ran an irregular continued fever ranging from 100 to 102 degrees throughout the course of the disease until convalescence was established three weeks after admission. During his stay in the hospital he had no symptoms of recurrence of the vitreous hemorrhages.

Examination of the eyes at date of discharge, January 29, 1931, revealed slight but perceptible clearing of the vitreous chambers of both eyes and manifest improvement in the vision of each eye.

The patient was permitted to return to his home in the country and, in addition to the administration of moderate doses of potassium iodide directions were given for a liberal diet of fresh vegetables, orange juice with an abundant allowance of fresh milk, cream, butter and eggs.

At a subsequent visit of the patient to my office March 20 he reported that after his return home he had had two attacks of defective vision, first in the left eye and afterwards in the right, with an interval of about thirty days between the attacks. These attacks were presumed to have been recurrences of the vitreous hemorrhages. At the time of this visit the patient showed marked improvement in his general health, having increased twenty-five pounds above his usual body weight, but the vision was still reduced to hand movements in the right eye and 2/200 in the left. Examination of the eyes at this time revealed the vitreous chamber of each eye so clouded with dense opacities as to preclude any detailed examination of the fundus.

The special interest claimed for the case attaches to the apparent rarity of the complicating conditions present.

In a paper entitled, "Schönlein-Henoch's Purpura With Intra-Ocular Hemorrhage and Iritis; Report of Case," read by Dr. W. L. Benedict, of the Mayo Clinic, before the Ophthalmic Section of the Detroit meeting of the American Medical Association in 1930, he said in commenting on the rarity of his case that so far as he had been able to learn from a search of the available literature ocular hemorrhages and iritis with corneal opacification had not been previously reported as a complication of Schönlein-Henoch's disease.

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## VARICOSE VEINS: THE TECHNIC OF TREATMENT BY THE INJECTION METHOD\*

PAUL S. LOWENSTEIN, M.D.

ST. LOUIS

The enthusiasm with which the profession has greeted the injection treatment of varicose veins in recent years has resulted in a very considerable literature. Many of the contributions are excellent proof of the value of this method and their study enables a rational employment of the procedure involved. Unfortunately, the number of these articles has occasioned an "embarrassment of riches" which has often confused the practitioner and deterred many from using the sclerosing method of curing this condition. In an attempt, therefore, to clarify a few of the essential points and to enable a wider group in general practice to adopt the method, this article is written.

*Object of Treatment.*—By the intravenous injection of certain irritating solutions an injury to the intimal lining of the vein is produced. As a result of this damage certain changes occur in the vein wall which cause a clot to form at the site of the injury and pro-

duce the gradual obliteration of the vessel lumen with the eventual transformation of the vein into a fibrous cord. I wish to emphasize that the object is not to produce clotting of the blood *per se* but only as a secondary effect of the injury to the endothelial cells of the vein.

*Flow of Blood in Varicose Veins.*—Contrary to the normal blood current in the veins of the extremities whose intact valves permit a constant flow toward the heart, the blood in the varicose vein is practically stagnant, or actually flows in a retrograde direction because the weight of the column of blood in the vein is unsupported by normal vascular walls or properly functioning valves. Largely for this reason the sclerosing fluid is limited to the vein or group of veins injected thereby minimizing the likelihood of any solution entering the general circulation before it has accomplished its purpose and become well diluted by the blood stream.

*Indications.*—Since the object of the treatment is to obliterate the varicose veins, which are part of the superficial group constituting the saphenous system, it is essential that the physician assure himself that the deep system of veins functions properly, for if there be obstruction to blood flow in the deep system the obliteration of the superficial group will occasion serious vascular disturbance and possibly eventuate in the functional or actual loss of the limb.

There are several relatively simple tests to determine the status of the deep as well as of the superficial venous flow, and each prospective patient should be accepted or rejected for the injection treatment on the information that these tests disclose.

### TESTS

The Trendelenburg test has stood the trial of time and demonstrates incompetency of the valves of the saphenous vein (Trendelenburg positive), or incompetency of the valves of both the saphenous and communicating veins (Trendelenburg double) and, furthermore, indicates whether the deep saphenous system is competent and functioning normally. The method of testing follows: With the patient recumbent, the affected limb is elevated sufficiently above the horizontal to cause collapse of the superficial veins. With the limb still elevated, a tourniquet is applied to the upper part of the thigh with sufficient pressure to compress the superficial veins but not to obliterate the pulse. The patient is then instructed to stand whereupon, if the valves of the communicating veins are normal, no demonstrable change occurs in the superficial veins. If, however, the valves of the communicating system are incompetent the superficial veins

\* From the Department of Surgery, St. Louis University School of Medicine.



will fill from below (Trendelenburg negative). In either event, if the valves in the saphenous vein are not competent the vein will fill rapidly from above when the tourniquet is removed. With early or relatively small varicosities the valves are often competent and the Trendelenburg test is nil. Later, with incompetent saphenous valves the test is positive, and when the valves in the communicating veins finally lose their function the test is doubly positive.

The Perthes test gives similar information regarding the competency of the valves in the communicating veins. With the patient standing, the tourniquet is applied to the upper thigh, as in the Trendelenburg test. The patient then raises and lowers himself on his toes 30 or 40 times. With normal communicating veins the blood in the superficial veins is forced into the deeper channels and the varicose veins are diminished in blood volume or become relatively empty. If the valves of the communicating veins are incompetent no such change occurs.

A third method which furnishes valuable information on the patency of the deep veins is to apply an elastic bandage (such as the ACE bandage) snugly to the affected limb from the toes to the mid thigh, thereby compressing the superficial veins. The patient is instructed to walk constantly for a half hour. If this is done in relative comfort, the deeper circulation may be assumed to be intact. If there be obstruction or incompetency of the deep veins there will be a marked increase in the patient's symptoms or even decided pain. In the absence of symptoms we are justified in assuming that the status of the deep veins is satisfactory.

No attempt at treating varicose veins should be prosecuted without a careful study of the general condition of the patient. Having assured ourselves that the vascular condition of the lower extremities justifies the injection method of treatment, it is then essential to know that the general body functions are relatively adequate. The examination of the patient should include a study of the heart and lungs, blood pressure, abdomen, temperature and urine. Certain cases will point to the necessity of special tests, such as the Wassermann reaction, etc., but the prime requisite in the examination is to exclude from this form of treatment of varicose veins those patients whose general or local condition would be impaired by the injection method.

**Contraindications.**—In general, the contraindications are (1) local vascular states in the involved limb, or (2) conditions affecting the general health of the patient. I have already indicated the necessity of avoiding the injec-

tion of veins when there is obstruction or incompetency of the deep veins. Similarly, a thrombophlebitis definitely contraindicates a sclerosing injection for at least six months and preferably a year from the time of the last symptoms. Be wary of injecting veins in the presence of edema for that condition frequently indicates insufficient venous return and the injection may light up a latent deep phlebitis. Certain vascular conditions, as Raynaud's disease and thrombo-angiitis obliterans (Buerger's disease) definitely contraindicate injection treatment.

Among the more common general pathologic processes which may be adversely affected by this method are advanced cardiovascular disease, advanced nephritis, advanced debility, untreated diabetes, hyperthyroid states, active or latent tuberculosis and certain focal infections. Old age as such is no bar and elderly patients are successfully treated, provided their general condition warrants. Most authors advocate only symptomatic treatment during pregnancy but marked varicosities in multiparae may require injections during the gravid state.

**Method.**—A 5 c.c. or 10 c.c. all glass syringe of the Luer type is the most satisfactory, preferably one equipped with metal rests or rings for the fingers thus obviating the necessity of employing both hands when one wishes to withdraw the plunger slightly to insure that the needle is in the vein (fig. 1). The needle should be 23 gauge, 5/8 inch long with a short bevel, and must be sharp (fig. 2). It is difficult

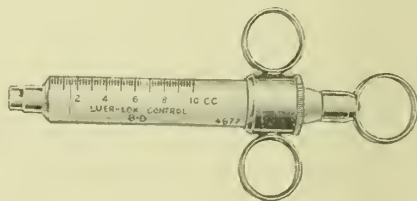


Fig. 1. Luer-lok control syringe, 10 c.c. capacity. This type of syringe is the most satisfactory because the rings for thumb and fingers permit aspirating or injecting with one hand without shifting the position. (Becton, Dickinson & Co.)

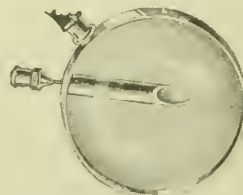


Fig 2. Correct needle point, magnified. Note that the point is sharp and the bevel short. (Becton, Dickinson & Co.)

to aspirate the sclerosing solution into the syringe through this fine needle so a larger one (about 16 gauge and 1½ inches long) may be employed for that purpose. When a sufficient quantity of the solution has been aspirated into

the syringe the large needle is discarded and the small needle attached. The syringe and needles should be sterilized by boiling—alcohol is not satisfactory for this purpose in vein injection work.

Of the many solutions that have been employed two are in favor at present. Sodium salicylate in solutions of 20, 30 or 40 per cent produces very satisfactory results but it has lost some of its popularity in this country because of the temporary cramp following its injection and the likelihood of producing a slough if injected outside the vein. There are available in ampules put out by various pharmaceutical houses solutions of a combination of sodium chloride (usually 10 or 15 per cent) and dextrose or invert sugar (usually 30 per cent). Because of its efficacy, its relative painlessness and its diminished tendency to produce sloughs this combination is favored in several of the large clinics in this country.

The position of the patient varies with the location of the vein and the preference of the operator. Generally, it is advisable to have the patient recline on a table. If the limb to be injected is now slightly elevated the veins will tend to collapse, an ideal state for bringing the sclerosing solution in intimate contact with the vein, unmixed and undiluted with blood. However, it is more difficult to assure oneself that the needle point is inserted wholly within the vein lumen when the vessel is thus collapsed, unless by stroking (or "milking") downward a small segment of vein compressed between thumb and forefinger one can sufficiently distend the vessel to facilitate its injection. Some physicians prefer to insert the needle with the limb dependant and then with the needle in place have an assistant carefully raise the leg above the horizontal position. The chief objection to this method is the danger of shifting the position of the needle thus causing the point to be withdrawn from the vein or plunged through it.

The less blood present in the vein during and immediately following the injection the greater the likelihood of a successful effect upon the intimal lining. Some workers achieve this by placing a tourniquet just below the site to be injected with sufficient pressure to compress the superficial veins, and another tourniquet about six inches above. These are allowed to remain in place for 10 or 15 minutes after the injection, thus localizing the effect of the solution to the particular vein segment desired.

Whatever be the method employed, an aseptic technic is essential. The skin over the vein to be injected is painted with tincture of iodine, the excess washed off with alcohol and the needle inserted obliquely into the vein. The

solution must never be injected unless one is certain that the point is freely in the lumen of the vein (fig. 3). It is wise to verify this at intervals during the injection by slightly withdrawing the plunger of the syringe, whereupon blood will be aspirated if the technic is correct.

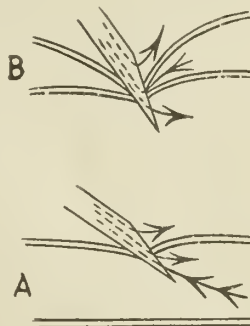


Fig. 3. Wrong insertion of needle into vein. A. Long bevel may aspirate blood and yet allow a perivascular injection. B. With the vein nearly empty, a dull needle with a long bevel might compress the vein so as to penetrate the posterior wall and give a perivascular injection. (As suggested by Dr. H. O. McPheeters.)

The solution should be injected rather slowly, particularly in thin-walled varices, lest the vessel be ruptured. The exact quantity varies with the size of the vein and the extent one wishes sclerosed. Until the tolerance of the patient is known, the first injection should be small, but subsequently quantities of 5 to 10 c.c. or even more may be injected into the larger radicles. With experience one learns to judge the amount of solution required for a given segment or group.

After the injection the needle should be allowed to remain in the vein for several minutes to prevent an extravasation of fluid from the puncture wound. Immediately upon withdrawal of the needle a cotton ball should be held firmly at the site of the injection for five minutes then fixed in place by crossed strips of adhesive for twenty-four hours. It is advisable to bandage the limb snugly with an elastic bandage and after ten or fifteen minutes the patient may be allowed to get up. With the larger veins it is well to have the patient elevate his limb for the ensuing day whenever sitting, but with smaller vessels his activities need not be restricted. Under no circumstances should he be confined to bed as the likelihood of embolism is thereby greatly increased. Many writers do not insist upon an elastic bandage being worn but it is usually a source of comfort to the patient, aids in the formation of a firm thrombus and should be maintained at a snug pressure by daily rebandaging for a few weeks.

When there are several veins or groups of veins requiring injection the first to be treated



should be the lowest one above the ankle. Subsequent injections should be made progressively into more proximal vessels until all varices up to the fossa ovalis are sclerosed. The fear of embolism has deterred many physicians from injecting veins above the knee, but in properly selected cases the saphenous vein may be safely thrombosed throughout its entire length above the ankle. Veins in the foot should not be treated because of subsequent pain attending the wearing of shoes, and injections at the malleoli are similarly inadvisable. In the absence of untoward symptoms, injections may be given every third or fourth day into different groups of veins, not reverting to the veins once treated until a sufficient period has elapsed to assure oneself that the vessel is not sufficiently sclerosed.

The patient may be seen at intervals of a few days during the active treatment and should be kept under observation for a few months to "pick up" any segments missed originally. At six months and again at one year he should be restudied for evidence of recurrence or the presence of new varices, and discharged with instructions to report should any veins become varicosed later.

*Symptoms Following Injection.*—After the employment of any of the solutions in common use the patient may experience a cramping pain in the limb immediately after the injection but it usually subsides in a few minutes. With the combinations of salt and sugar the pain is rather less than with sodium salicylate and in fact is often absent altogether. For this reason many operators now use these newer combinations some of which contain small amounts of anesthetic preparations (such as benzyl alcohol) which seem to diminish the tendency to cramp.

Occasionally, in the more apprehensive patient nausea or fainting may occur, but if warned in advance of the momentary pain most people evince little alarm and ensuing treatments usually proceed with small or no concern. Rarely, a diffuse redness appears in the limb shortly after injection but it disappears spontaneously in a few hours.

As a rule, there are remarkably few complaints of pain in the limb, but palpation at the site of the injection for some days following may reveal a tender indurated cord. This represents a sclerosing phlebitis, or "venitis," which after the intravenous administration of larger amounts of the solution may extend upward through the length of the saphenous vein. In the thigh this cord may be quite tender and painful but if treated with supportive

bandages and with mild heat if necessary it usually occasions the patient little inconvenience.

*Complications.*—Entirely due to errors in technic, two factors may complicate the usual picture following an injection. One is the extravasation of the fluid outside the vein; the second, slough may follow.

It cannot be too strongly emphasized that an injection should never be made unless one is certain that the needle is within the vein; if in doubt the fact should be frequently verified by slight aspiration. If the operator waits until a subcutaneous swelling or a blanching of the skin is produced much harm may result. Minute amounts of solution outside the vein (particularly the glucose-saline combination) usually cause few or no untoward symptoms. If larger amounts are introduced outside the vein the possibility of a slough may be rendered less likely by injecting 10 or 20 c.c. of sterile normal salt solution into the same area. A hard sensitive zone may subsequently form but its absorption may be hastened by heat or by the application of a 30 per cent mercury ointment.

The formation of a slough may greatly delay the final dismissal of the patient from treatment as its separation is often a slow and tedious process. It should be treated on surgical principles which are, it must be admitted, much less efficacious than preventive measures.

The most dreaded complication following the injection treatment is a pulmonary embolus. Small emboli that produce minute infarcts of the lung probably occur more frequently than the literature would indicate. Larger emboli causing a fatal issue are much less common than with the operation of vein excision but cases have been reported. Their incidence is so low however that with the exceptions previously discussed patients coming for treatment of varicose veins should not be denied the benefits of this relatively safe and satisfactory method.

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## PERSISTENT HEREDITARY EDEMA OF THE LEGS—MILROY'S DISEASE\*

JAMES HARVEY JENNETT, M.D.

KANSAS CITY, MO.

In December, 1930, there came into the dispensary of the Kansas City General Hospital a boy, Carl G., aged 14, with a painful ingrown toenail. During the examination it was noted that the boy had very large indurated edematous legs with excessive moisture about his feet and verruca acuminata around the margins of his toes. The toenail causing the pain was almost buried by the edematous and condylomatous folds. The legs had an elephantiasis-like appearance, the skin being tough and leathery, the hair follicles and sweat glands markedly farther apart than normal and the hard, brawny, white edema extended to the knees of both legs (fig. 4). In taking a history we found that he inherited this condition from his mother who also had this abnormality, that a sister had the same trouble and that all of them had been afflicted since birth.

Ernestine, Carl's sister, aged 24, also has a marked edema of both legs extending to the knees (fig. 3). The left calf is the larger and measures  $19\frac{1}{2}$  inches in circumference. This condition has been present since birth and is more severe with her in the point of inconvenience than with any of the others. She was born with bilateral club feet and a marked scoliosis of the spine. She did not learn to talk until she was five years old and even now has a speech defect resembling cleft palate caused by an arched deformity in the posterior portion of her hard palate. She began menstruating at the age of 13 but has never menstruated more than once or twice a year.

Mrs. G., aged 50, the mother, weighs 280 pounds and is 5 feet 10 inches tall (fig. 2). She makes an unusual appearance with the peculiar swinging gait caused by the weight of the heavy feet and legs beneath her. Her feet are laced in low shoes and show only a puffy edema of the dorsum and toes. Beginning just above the shoe tops there is a tremendous edema which extends to the knee in the right leg and to the mid thigh in the left. The left calf is 26 inches in circumference, the right 21 inches. The shape of the legs is very striking and is typical of this condition. There are constricting bands at the ankles and the edematous tissue hangs in folds over the shoe tops—as Meigs<sup>1</sup> says, "like the pants of a Zouave."

The skin in these cases was not stretched

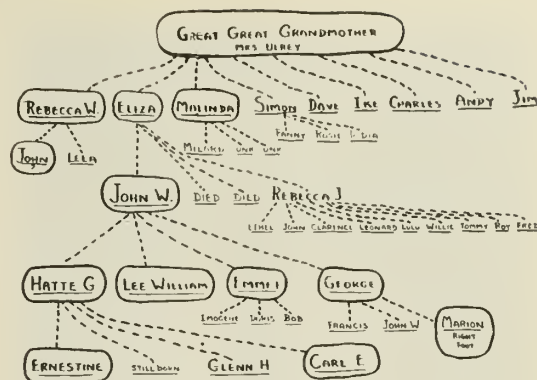


Fig. 1. The family tree for five generations with thirteen afflicted individuals.

tight and glossy, as in dropsical edema. It was pachydermic in appearance and feel, could not be pinched up between the fingers, blanched white on light pressure and yielded on prolonged hard pressure to form a deep pitting which would take 10 to 15 minutes to fill out. When the skin was incised it gaped widely and watery lymph exuded freely until a capillary was cut and then bright red blood and water ran freely. Healing took place quickly and there seemed to be good resistance against infection. Under the skin was a very thick layer of fatty, collagenous or jelly-like tissue giving the large swollen appearance and doughy feel to the legs.

This never caused any pain or discomfort other than the weight and clumsiness of the legs and the cosmetic embarrassment. They



Fig. 2. Mrs. Hattie G.

\* Read at the 74th Annual Meeting of the Missouri State Medical Association, Joplin, May 11-14, 1931.





Fig. 3. Ernestine.



Fig. 4. Carl.

have always done hard work and been in good health. The children are able to keep up with their classmates in school. There have been no acute attacks and remissions. If they stay off their feet the swelling is less. The mother says that after a hard day's work the calf of her leg will sometimes swell to 30 inches in circumference. If they go to bed for a couple of weeks or keep the legs bound tightly day and night the swelling will almost disappear but it returns quickly when they get up. When the legs are firmly bound and the swelling is kept out they feel much lighter on their feet but there is some swelling of the face and puffiness of the hands. They feel drowsy and sluggish and because of this and the difficulty in keeping the legs bound and the chafing it causes on the legs they all discontinued binding.

Occasionally the mother notices a sudden reduction of the swelling. For instance, she may be walking and one stocking will slide down because the swelling in that leg is suddenly partially relieved.

There is no anesthesia of the skin. If any difference they are all more sensitive than normal. The swelling is less and they feel better on cold damp days than on warm days. A hot bath always makes them worse.

In addition to the two children mentioned, Mrs. G. has another son Glenn, aged 19, who is a normal boy except for a right inguinal hernia. Her second born was a stillbirth which was not fully formed. During pregnancy the edema was improved rather than made worse and delivery was not prolonged or difficult.

A study of the family for five generations reveals thirteen individuals afflicted with this

disease among thirty-three members of the family of which Mrs. G. can find record (fig. 1). Mrs. G.'s father, this father's mother and her mother before her all had this trouble. The family of Mrs. G. live in rural Missouri and the great-great-grandmother was a Pennsylvanian of German descent. In this family tree it is interesting to note that an unaffected parent never transmits the edema. There are about as many males as females affected. All have swelling in both legs except two, George G. and Marion, who have it in the right foot and leg only. It may be transmitted from father to child or mother to child. It seems to follow the mendelian law. There seems to be no interference to a long active life.

An examination of these patients revealed no abnormality of the heart, kidney, lungs or other organs. The reflexes were present and active in all. The blood pressure, blood chemistry, blood count, Wassermann test, Kahn test and urine examination revealed nothing abnormal. An examination of the urine for chyluria, so often found in cases of lymph stasis, was made on several occasions but it was not found. Roentgenograms of the legs revealed no abnormality of the bones but did show the tremendous increase in the soft parts with considerable irregular dense mottling scattered throughout. This mottling in the mother's legs has the density of calcium deposits in places. Plates of the lumbosacral spine were made in anteroposterior and lateral positions for spondylolisthesis and this was ruled out. Ernestine has a marked scoliosis to the right in the lumbar region. Carl has a very suspicious spina bifida occulta and Mrs. G. has very markedly hypertrophied lateral spines to the lower lumbar vertebrae.



Fig. 5. Figure 2 with legging firmly laced, first day.

Roentgenograms of the sella turcica failed to show enough variation from the normal to suggest an abnormality of the pituitary gland. Ernestine was given pituitary extract by a doctor some time ago and it made her feel so miserable she had to discontinue.

The basal metabolic rate was taken on each and all were below normal; Mrs. G., minus 32, Ernestine, minus 3, and Carl, minus 6 on the first test. The test was repeated at a later date and Mrs. G. was minus 6, Ernestine, plus 2, and Carl, minus 4. In the face of this low metabolic rate it is hard to rule out myxedema but, considering the presence of a thyroid of normal size, the limitation of the edema to the legs, the fact that the edema was not merely apparent but real and the fact that the administration of thyroid extract for two months did not relieve the condition, we excluded it.

Blood calcium was taken on each and was found to be above normal. Ernestine had a blood serum calcium of 12.7, Carl 10.5, and Mrs. G. of 11.2. This in the face of excess fibrous tissue and collagen in the subcutaneous parts even to a suggestion of calcification we thought interesting.

A biopsy was made of each patient and there is marked flattening of the dermal layers, excess fibrous tissue and collagen, all separated by intracellular spaces filled with edema. There is no lymphangiectasis, the lymphatics being hard to make out and not dilated. There is some perivascular infiltration and in places almost obliterative endarteritis of some of the small vessels.

In 1891 Nonne,<sup>2</sup> of Germany, and in 1892 Milroy,<sup>3</sup> of Omaha, described the unusual con-



Fig. 6. Figure 2 with same legging after continual wearing and tightening every morning for one week.

dition so typically illustrated by our family and to which Osler<sup>4</sup> gives the name, Milroy's disease. In Milroy's series there were 22 cases among 97 individuals in six generations of one family. Our cases resemble Milroy's exactly in that, (1) there is a strong family predisposition; (2) it begins at birth; (3) males and females are affected equally; (4) the edema is confined to the legs; (5) there is no pain or discomfort except weight of the legs; (6) there is no demonstrable cause local or general; (7) there is an absence of constitutional symptoms; (8) it is not inimical to life; (9) no treatment does any good except temporarily; (10) it never gets well.

There have been relatively few families with Milroy's disease described in the medical literature. No one has ever described as large a series as Milroy's nor traced it in a family so extensively.

The only cases that I have been able to find in the medical literature of more than two affected individuals in one family are as follows:

Nonne<sup>2</sup> in 1891 and Milroy<sup>3</sup> in 1892 described the first families on record. In 1898 Meige<sup>1</sup> in France presented eight cases in four generations but in all his cases the edema did not begin until puberty. In 1902 Rolleston<sup>5</sup> in England presented three cases in two generations. In 1908 Hope and French<sup>6</sup> in England reported thirteen cases in five generations but practically all of them had acute exacerbations of chills and fever, redness and pain in the legs with recovery from the acute attacks in four or five days. Since 1908 little has been written or heard about this unusual condition.





Fig. 7. Side view of figure 6. Legging not only laced together but with a one-inch tuck taken up the back.



Fig. 8. Figures 3 and 4 after daily tightening of boots for one week which at first caused them great joy but which they later discarded.

The only article I have found written since 1908, describing a family in which the hereditary factor was present to any extent was by Strauss<sup>7</sup> of St. Louis. He described a case with a history of five other members afflicted in a family of eleven in three generations. These individuals developed edema at about puberty and resembled Meige's family more than Milroy's. Several sporadic cases of this type of edema have been described some of which had a history of one other member of the family having a similar trouble but none adhere to the criteria of Milroy's series. Practically all these are sporadic cases with an etiological explanation, as a previous phlebitis or cellulitis in the leg, hubo infection, tumor growth, constricting scars or lymph adenitis, etc. Painter and Bean,<sup>8</sup> of Boston, for example, report three isolated cases of edema of the legs, call them Milroy's disease and then say that none of the patients had other cases in their families, none had the swelling from birth, and the authors conclude that there was an endocrine gland etiology. We do not consider these to be cases of Milroy's disease.

The etiology of this curious affliction is still obscure. There has never been an autopsy reported on one of these cases. There have been many theories of explanation of this condition. Milroy suggested that there possibly was a congenital absence of valves in the large veins of the legs. Osler gave it as his opinion that this disease was an angioneurotic type of edema. Hope and French consider it a vasomotor neurosis. Parkes Weber<sup>9</sup> believes there is an antenatal or postnatal developmental abnormality of the lymphatics and connective tis-

sue. Meige suggests the possibility of hysteria but concludes that it is a trophic disturbance with a probable cause in the spinal nervous system and being metameric in the areas in which edema is produced.

There are many developmental defects in Mrs. G.'s family. The mother had a deformed stillbirth and has abnormally broad lateral vertebral spines; Ernestine had bilateral club feet, and has marked scoliosis and a deformed palate; Carl has a spina bifida occulta, and Glenn has an inguinal hernia. We believe that some congenital anatomical abnormality the nature of which has not been explained is the etiology of this condition. We believe there is a local rather than a generalized cause, that there is an obstruction of some kind, and that the stasis is circulatory rather than lymphatic.

Treatment with drugs, gland extracts, massage and electricity is of no value. Binding relieves the weight and clumsiness of the legs but the relief is only temporary and is usually given up by the patient. Surgery seems to be the best treatment. Ligation of the femoral artery has benefited some cases. Sympathectomy has been suggested but to my knowledge never tried. The Kondoleon<sup>10</sup> operation especially the modification of Sistrunk<sup>11</sup> in which long strips about two inches wide of skin and subcutaneous tissue and fascia are taken out of the inner and outer sides of the legs from trochanters to malleoli down to the muscles and the edges reapproximated, has given beneficial results in several cases of similar abnormality. This theoretically connects the superficial and the deep lymphatics and permits improved drainage. We are con-

templating this operation for at least one of our patients.

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## PUSTULAR STOMATITIS OF STREPTOCOCCUS HEMOLYTICUS ORIGIN

### REPORT OF CASES

JOS. P. COSTELLO, M.D.

ST. LOUIS

During the summer of 1931 I observed in my practice a number of cases of sore throat in infants and children which were different from the ordinary cases of stomatitis, pharyngitis and tonsillitis described in the textbooks. The lesions were of a pustular type and were found chiefly on the anterior pillars of the palate and the posterior pharyngeal walls. They began as a vesicle which changed over into a pustular form within a few hours. The pustules would rupture leaving a denuded surface appearing very much like a superficial ulcer. Cultures taken from these pustules showed the Streptococcus hemolyticus. The disease was so infectious as almost to be classified as contagious. The incubation period was from two to seven days. When one child of a family became infected, quite frequently other children of the same family would develop the disease within three days.

The symptoms were: Sore throat, pain in the abdomen, fever ranging from 101 to 105 F., loss of appetite, vomiting, malaise, and in some cases diarrhea. The white blood count ranged between 12,000 and 14,000. In none of my cases were there any complications such as one would expect from a streptococcus infection of the throat.

The treatment which I gave these children was local application of mercurochrome, 2 per cent, and salicylates internally.

The duration of the illness was usually from three to seven days. The fever seemed to subside shortly after all the pustules were ruptured. The appearance of the throat in these cases

was almost identical with that seen in the throats of children suffering from chickenpox.

Lister Building.

## SEWING NEEDLE IS CAUSE OF MANY HOME ACCIDENTS

People have an unwarranted fear of hypodermic needles breaking in the body, while they do not often regard the everyday sewing needle with alarm. The sewing needle is the cause of numerous household accidents. Few other small accidents cause so much distress and worry as the needle accident, comments Dr. Victor W. Eisenstein in *Hygeia*. There is always the fear that the needle particle will travel in the body and do harm.

As a rule such accidents do not endanger life. A few authentic cases of the movement of needles in the body have been reported in medical literature. But bona fide instances of far-flung migrations are hard to find, asserts Dr. Eisenstein. In the majority of cases needle fragments in the body are remarkably well behaved and give little serious indication for their removal. The motion that occurs is caused by the contraction of the muscles.

Such accidents annoy the physician because of the difficulty of removing a needle fragment. One doctor has remarked that he would rather look for a needle in a haystack than for its mate in the flesh. Devices are being used today, however, that will help to locate the needle. One method magnetizes the fragment and seeks for it with another needle.

Make the home a safe place in which to live by following a few simple rules in regard to needles, advises this doctor:

Sew only in a light room and in a comfortable position.

Keep needles in a definite place. When a needle is not in use, keep it threaded to insure its detection if lost.

Keep fingers well away from the needles in sewing machines.

Use a thimble.

Inspect garments that have been repaired before wearing or washing.

Wear shoes or slippers about the house.

Look where you search; don't poke blindly in littered drawers or bags.

Keep one needle at a time in the work basket; keep all others out of the way.

## UNUSUAL SKIN REACTION TO EPINEPHRINE

According to R. W. Lamson and S. O. Chambers, Los Angeles (*Journal A. M. A.*), the subcutaneous administration of epinephrine may be attended with certain protracted or even permanent manifestations. In one patient observed by them so small a dose as 0.2 c.c. caused a definite anemia of the skin in an area of at least 3 cm. in diameter. This anemic area was observed more than six hours after the injection, and somewhat larger doses have prolonged such manifestations for a period of from twenty-four to thirty-six hours. In spite of such protracted action with accompanying anemia of the skin, no permanent change was observed. The skin immediately around the site of injection shows marked atrophy suggesting the appearance of the foveated scar which follows a "primary" vaccine virus reaction. These unusual reactions may represent a local hypersensitivity or idiosyncrasy to the drug, but they have not been accompanied by any untoward systemic responses.



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DECEMBER, 1931

## EDITORIALS

### A NEW ERA

In October, 1923, St. Louis and Missouri supplied front page news for the press of the country when the St. Louis *Star* exposed the medical diploma mill which had its headquarters in the St. Louis College of Physicians and Surgeons. Here one could buy a diploma for whatever sum he might scrape together. Ultimately, the Missouri Supreme Court revoked the charter of the school for fraudulent practices. Another school in Missouri was involved in the medical diploma mill, the Kansas City University of Physicians and Surgeons and the Supreme Court revoked the charter of that school on similar grounds. The ink was scarcely dry on the mandates of the Court before new charters had been obtained.

Eight years later, that is to say, in October, 1931, a petition was filed with Honorable William H. Killoren, Judge of Division 5 of the Circuit Court of St. Louis, asking that a pro forma decree of incorporation be granted the National College of Medicine and Surgery in St. Louis. Judge Killoren appointed former Judge Harry E. Sprague amicus curiae and to Judge Sprague may be accredited the inauguration of the new era. It is not front page stuff but to the medical profession it is a most gratifying indication that our efforts to clean up the medical college field have not been fruitless. The issuance of a pro forma decree of incorporation of a philanthropic or educational institution has hitherto been a very perfunctory action by the courts. When, however, Judge Sprague read the petition for the incorporation of a medical school which frankly stated that the intention of the petitioners was to establish a low grade or grade B school he was mindful of the incalculable damage that the people had suffered by the machinations of the owners of the two schools whose charters had been revoked. Instead therefore of pursuing

the usual tactics of the amicus curiae and putting his O. K. on the petition after a cursory examination he made a searching investigation of both the petitioners and of the purposes of the college.

Judge Sprague found that only one of the petitioners had even slight experience in the conduct of a medical school. This was William F. Walker, a graduate of the St. Louis College of Physicians and Surgeons but not licensed to practice in Missouri. Walker did obtain a license to practice in Arkansas and after thirteen months in that state applied for a license in Missouri by reciprocity with Arkansas. The Missouri State Board of Health refused to issue a license to him and thereupon he filed a mandamus suit to compel the board to issue a license to him. The lower courts refused to grant the mandamus and Walker appealed to the Supreme Court where the suit is now pending.

The other petitioners were F. E. Deal, who is said to be in the advertising business and was proposed as the president of the institution, and William R. MacCready, an insurance broker. Neither of these men had any knowledge of medicine or the teaching of medicine.

In the articles of incorporation the school would be authorized to teach medicine, surgery and homeopathy and to maintain a clinic and hospital and be organized as a class B institution.

The petitioners stated that they were the representatives of four men who agreed to subscribe \$100,000 to finance the proposed college but refused to reveal their identity. This desire for secrecy, they said, was based, first, upon an inclination to avoid solicitations of physicians who might seek employment on the hospital staff; and further, because these men had friends in the American Medical Association and professed to be in accord with the standards of that association. They did not desire to disclose their identity until the establishment of the college had become definitely assured.

The application for incorporation in St. Louis was in the name of the National College of Medicine and Surgery but a permit had been obtained in Kansas City in the name of the Missouri College of Naturopathic Physicians and Surgeons. Deal told Judge Sprague that the group had originally planned to operate the college and hospital under the charter obtained in Kansas City with Dr. Edward J. Burns, Kansas City, a chiropractor, as superintendent, but they had severed relations with that group. The records of the St. Louis Health Department show that an application was made for permission to operate a college,

hospital and clinic in St. Louis. The persons named in the application were, W. F. Walker, Daniel H. Reeder, Edward J. Burns, Robert H. Burns and F. E. Deal.

In his exhaustive investigation Judge Sprague questioned the petitioners most searchingly; he also conferred with the officers of the Missouri State Medical Association and the St. Louis Medical Society and with Dr. E. P. North, St. Louis, a member of the Council on Medical Education and Hospitals of the American Medical Association, and Dr. James Stewart, Jefferson City, secretary of the state board of health. He found that none of these organizations recognized a class B medical school; that if the decree were issued and the school became established it would then be investigated and rated according to the minimum standards of the American Medical Association and the state board of health; that if the school failed to meet these minimum standards it would not be approved by the American Medical Association nor by the state board of health; that, in such event, the graduates, if any, would be debarred from taking the examination for a license in practically all the states in this country.

Under these circumstances Judge Sprague recommended to the court that the decree be not issued.

The petitioners evidently discovered that they were experiencing some difficulty in convincing Judge Sprague of the necessity of such an institution and they requested the court through their attorney, Mr. J. Henry Caruthers, permission to withdraw the petition. Judge Sprague declined to agree with this request because he desired the petitioners to appear in court and in their presence to read the evidence he had gathered in order "to prevent, once and for all, the establishment of the college."

The petitioners did not appear and Judge Sprague filed his report with the court. Thereupon Judge Killoren rendered his decision as follows:

"In view of the opinion as disclosed by the report of the amicus curiae, the order of the court will be that the petition for pro forma decree of incorporation filed by the petitioners herein will be denied."

Judge Sprague has established a standard from which there should be no deviation in future when the amicus curiae undertakes to advise the court what action should be taken on a petition for the incorporation of a medical school in Missouri, or indeed in any other state. The most searching investigation should be made into the character of the petitioners, their purposes in attempting to establish a medical school, the privileges granted the school under

the articles of incorporation and how those privileges might affect the welfare of the community. Nothing short of this should satisfy the amicus or the court. If the school is a needed institution and if the petitioners are reputable citizens imbued with the spirit of true philanthropy they will welcome this sort of inquiry. Petitioners with less noble instincts if entrusted with such broad powers as must necessarily be granted in the establishment of a medical school can be nothing but a menace to the welfare of a community and their petition should be denied.

On another page\* we publish the full report of Judge Sprague and the decision of Judge Killoren.

\* See page 625, this issue.

#### ANDREW WALKER McALESTER MEMORIAL FOUNDATION

The marvelous advancement in medical science in the last half century has placed a much greater demand for service and has changed the character of service needed of our profession. No longer are we an exclusive priesthood practicing an empiric art. The possession of scientific knowledge puts upon us the obligation of disseminating that knowledge to all mankind; it is the difference between the old and the new and requires that we become teachers of the truth which makes men free. No basic truth may be kept by a cult, a society or profession; it belongs to all mankind so far as it is possible to give it to them. It is our obligation to teach the science of health and the basic facts of medicine to all the people possible for by so doing we are contributing immeasurably to the culture, well-being, and general happiness of all the people. "He who happiness would win must share it, for happiness was born a twin," and likewise we should share our knowledge of truth with all the people if we may happily render our most beneficent service.

During this momentous period in which the science of medicine has made more progress than in all the previous history of man there has lived very near us a great medical prophet and teacher. Many sat at his feet and were inspired by him. Some have achieved grandly. A multitude of suffering people has received his kindly ministrations and scientific care. Such a composite of all that is great and good and wise may not be suitably eulogized in these few words. The memory of him lingers as a great figure in medicine, a seer with a most prophetic vision, a practical idealist, and withal a most beloved first citizen.

So it came about that his disciples and former students had it in their hearts to memorialize this great man worthily. More than



two years ago committees were appointed by the State Association to study the matter and recommend a memorial that would express some of the values of his life. Many worthy projects were suggested, for his life presented many beautiful phases. After much thought and on the insistence of those who knew him most intimately during his later days, it was decided that the most fitting memorial would be a foundation which would honor and perpetuate his name in service to all the people of his state. It was decided that a foundation for the purpose of teaching truths of medical science to all the people would most fittingly symbolize his life and ideals. His scientific mind, his prophetic vision and his passion to serve were the factors which made up his great dream of teaching medical truth to the laity. He was always foremost in the advancement of medical teaching in our universities. His experience and leadership in public health service and his close contact with the people and their need of knowledge brought to him in his later days a vision which became an absorbing interest in the idea of teaching medical truth to all the people. He contended that in all of our schools the science of health or medicine should be taught, beginning even in primary grades where much might be given through methods of visual education. He often told his friends that he could think of no philanthropy that would compare with an endowment devoted to teaching the science of health in our schools and to all the people possible.

These are briefly some of the facts which have brought about the organization of the Andrew Walker McAlester Memorial Foundation. It is designed to function through and under the auspices of the University of Missouri, the institution to which so much of his valuable life was given. It may well serve to honor and perpetuate his name and in so doing will most bountifully serve the State in disseminating useful knowledge and promoting the general welfare. It may be done through the university more authoritatively than through any sectarian or private organization. There can be no ethical question as to motives. The Curators of the University are the custodians of the endowment funds to be invested by them and the income disbursed through the managers of the Foundation. These managers are elected, one from the faculty of the medical school, one from the medical alumni of the University, one from the veterinary department of the School of Agriculture and two from the Missouri State Medical Association. Later, two may be elected from contributing laymen.

How may it function? So broad a plan and scope is adopted that it encompasses any endeavor to teach medicine or health science to lay people. It is hoped that we may soon have one or more capable and full time public health men in this work. They may go all over the State constantly teaching health and preventive medicine in schools and to lay societies; training health units and groups of teachers in our colleges. They will cooperate with our state board of health in an educational way in their efforts to control epidemics and infections in local communities. They will be active in rural communities helping the farmers with their problems relating to the health of animals as well as humans. Writing, lecturing, broadcasting, visual education for the very young and all the varied methods of imparting information may be used. There should be no limit to the endeavors. Methods of extension work may also be used successfully. Publication of health bulletins, health columns in the press, every ethical and honest means of educating will be used.

It is indeed high time that we as a profession realize our duties as teachers of the truth and no endeavor will be more effective in annihilating falsehood and quackery nor add more to the appreciation of our profession. Such an effort as is proposed in this Foundation should have the sympathetic interest of every member of the profession.

The members of the Board of Managers are: Dr. Frank G. Nifong, Columbia, chairman of the board, and Dr. Arthur R. McComas, Sturgeon, elected from the Missouri State Medical Association; Dr. M. P. Ravenel, Columbia, secretary, elected from the faculty of the Medical School of the University of Missouri; Dr. J. W. Connaway, Columbia, elected from the Veterinary Department of the College of Agriculture, University of Missouri, and Dr. G. Wilse Robinson, Kansas City, elected by the Medical Alumni Association of the Medical School of the University of Missouri.

#### DECADENCE OF THE RADIO

History probably records no more glaring instance of a revolutionizing scientific discovery volplaning from the heights of immeasurable benefit for the uplift of mankind to the depravity of pandering commercialism than the radio has exhibited in very recent times. Without entering into a discussion of the marvelous achievements the radio has attained in the transmission of news, of religious doctrines by sane-minded exponents, educational talks that really do educate and musical programs that not only entertain but sooth and enlighten, we choose here to add our small voice to the warn-

ings recently uttered by others which we predict will soon become a nation-wide protest against the decadency of the radio. That this picture is not overdrawn we cite two articles from widely separated origins that appeared one in the *St. Louis Post-Dispatch* the other in the *St. Louis Globe-Democrat*, November 8, each item protesting vigorously against the de-praved status quo of the radio.

The *Post-Dispatch* published a letter signed C. D., East St. Louis, who said: "It appears that a long-suffering public is at last arousing itself to the point of protest against the superabundance of jazz claptrap that clutters up the air at almost every point on the dial of a radio. . . . The youth of today goes out to clubs and dances and enjoys its jazz first-hand; the ones who support the homes, pay the bills, buy expensive radios—in other words, who really constitute the American buying public—stay at home and are fed a potpourri of Tin Pan Alley hash, if they want to listen." Commenting editorially on this communication the *Post-Dispatch* said: "We print in the letter column a protest against the cheapening of the radio, and we imagine it represents the views of many thousands of persons who at first hailed the radio with enthusiasm, but who now classify it as a form of nuisance. The Government should never have permitted so precious an instrument for the delight and education of the people to slip into private hands. It was inevitable, once that happened, that radio would suffer from all the evils of commercialization. . . . The great bulk of broadcasting consists of advertising talks padded out with the wearisome and degrading monotony of jazz music. What a shame that the greatest invention of the age has become merely a kind of noisy market place. . . . Radio orators are fond of referring to their 'huge, unseen audiences,' but we agree with our correspondent that, unless some improvement is made in radio programs, the orators may some day discover that the audiences have walked out on them."

In the *Globe-Democrat* we find an item from New York City quoting Mr. O. H. Caldwell, former Radio Commissioner, as saying "it is useless to look to the Radio Commission for any restriction of quack medical advertising because the Commission is unable to exercise censorship authority over this kind of broadcasting." The only hope offered is "an amendment to the radio act by Congress," but the article continues: "I have not much faith in the power of legislation to curb this type of advertising. I do not believe that a law can be drafted which will not have a lot of holes in it. . . . By far the most effective way to stop this kind of advertising is directly through the

pocketbook of the station owner. Radio advertisers are, as a rule, inclined to be very particular as to the company they keep. . . . If a station advertises patent medicine, it is not a particularly good advertising medium for clients of a more respectable sort. . . . More and more, I believe, reputable advertisers are going to refuse to buy time on stations which accept objectionable medical advertising."

That the broadcasters themselves have heard the early rumblings preceding the storm that is certain to overwhelm the offending stations if the decadency is not quickly corrected, we infer from some general principles to govern the standards of commercial practices adopted by the National Association of Broadcasters at their Detroit session last October. Among these standards we find the following:

"Service to the listener is a primary requisite to commercial success.

"Quality of production should never be sacrificed to commercial expediency.

"Each advertiser should be required to make a contribution to the entertainment or education of the listener for the privilege of reaching ing the radio audience with his message."

The Missouri State Medical Association and some of its component societies have not overlooked the menace this form of medical advertising holds for the indiscriminating public. On several occasions it has been our privilege to inform broadcasting stations of the undesirable character of certain persons known to be negotiating for a contract which the station refused after an investigation from the lead we supplied. On the other hand, an effort to induce a station to cancel a contract with the owner of a medical apparatus whose talks were misleading and deceptive was met with the proposition that we supply the station with another client to take the place of the one objected to or pay the station the equivalent in money.

Quacks of all kinds come and go. The worst of them is of course the medical quack because he tampers with health and life and the damage he does may be irreparable. Sometimes they attain great heights in their brief but meteoric careers. Such a one was Doctor Elisha Perkins who cured everything from pains in the head to straightening old people who had been walking lame and stooped for years with a couple of iron rods which he called "metallic tractors" that were supposed to generate an electric current when gently stroked on various parts of the human body. After attaining the supposedly unattainable by fooling the Connecticut Yankees and all the Down Easterners he jumped to Denmark and fooled the Danes including Professor Tode, physician to the King of Denmark. Then he hopped over to



England where the top hats fell hard and lionized him and through the influence of several Right Honorable Lords and a number of Sir So-and-Sos created the Perkinean Institution in 1804. In current history we have Brinkley and his goat gland gripe on thousands of credulous persons including a political leader of national repute.

But the stick always comes down. Perkins' claims for his metallic tractor were exploded by some English physicians who obtained the same results with imitation tractors made of wood and his vogue ceased. Brinkley has a few sparks left in his rocket but we'll hear the thud ere long.

#### DEARTH OF PSYCHIATRISTS

The adoption of a comprehensive plan for the development of an adequate psychiatric personnel to meet the needs of the rapidly expanding psychiatric and mental hygiene activities throughout the country was announced October 25 by the National Committee for Mental Hygiene. A new division of psychiatric education has been created in the office of the National Committee with the aid of the Commonwealth Fund, the New York Foundation, and the American Foundation for Mental Hygiene.

The division is under the immediate direction of Dr. Ralph A. Noble, formerly of Sydney, Australia, who has a wide knowledge of psychiatric education in Europe and America and was invited to this country to inaugurate the work of the new division and to take active charge of the program. Associated with him is Dr. Franklin G. Ebaugh, Denver, director of the Colorado State Psychopathic Hospital, who is familiar with psychiatric training problems in this country and has given the subject special study. An advisory committee composed of leading medical and psychiatric educators will meet regularly to study new problems and to guide the development of the program.

The main objectives of the program will be: to work out further schemes for recruiting and training psychiatric and mental hygiene personnel; to secure more candidates qualified for psychiatric and mental hygiene work; to appraise and to assist in the development and improvement of existing educational facilities; to study the programs at present being followed in the teaching of undergraduates and graduates in medical schools; to administer fellowships, and to assist in placing trained personnel in university, hospital and community mental hygiene activities.

The work of the division will center largely around the medical schools with a view to the

development of adequate psychiatric teaching and the training of graduates and undergraduates in this subject. The purpose will be two-fold: to attract medical students to the specialty of psychiatry, and to give those who plan to engage in other specialties or in general practice such instruction as will equip them better to deal with the psychiatric problems that will inevitably arise in their work.

A study is now being made of the status of psychiatry in medical school curricula and it is planned to visit sixty or more medical schools in this country. Information will be gathered regarding the types of work for which training is offered, the experience, qualifications and special interests of instructors, the hours and content of lectures in psychiatry, the nature and extent of clinical and field work, laboratory activities, methods of recruiting students and other factors making for excellence or deficiency in psychiatric teaching. A study will also be made of clinical facilities for psychiatric teaching in hospitals, outpatient departments, laboratories and consultation centers, and of research activities and programs in psychiatry and mental hygiene. Conferences will be held with deans of medicine, professors of psychiatry, psychology, pediatrics, and other department heads, and when requested recommendations will be made for the future development of psychiatric teaching in both graduate and undergraduate fields. Standards of psychiatric teaching will be formulated for the guidance of teaching centers.

A committee of the American Psychiatric Association which has been studying the problem of psychiatric personnel summed up its conclusions on the matter as follows: "The dearth of competent psychiatrists is becoming a major issue in human welfare. It is no longer merely a matter of overcrowded mental hospitals in which the patients receive but momentary attention from the mental specialists. . . . We are confronted by a matter amounting to a national emergency—one not alone of producing psychiatrists enough to meet the need but one of producing, in large number, psychiatrists competent to handle the extremely involved problems for which their aid is more and more insistently requested."

This picture of the need is not overdrawn. Of the approximately 160,000 physicians in the United States, somewhat over 40,000 are specialists in the various branches of medicine and of these but 1,600 are psychiatrists, or 1 in 25. This is out of all proportion to the magnitude of the problem of mental and nervous diseases and to the known facts regarding the extent and frequency of these disorders.

## KANSAS CITY SOUTHWEST CLINICAL SOCIETY

The Kansas City Southwest Clinical Society is perhaps the most effective gesture that the profession in Kansas City has made toward furthering medical education in the Southwest. The Society has been well received and generously supported. The ninth annual session convened in Kansas City, October 5 to 9, and even in the face of adverse economic conditions the registration exceeded 1000, almost equaling that of the preceding year. Over fifteen states were represented.

The general attitude of the enrolment was more serious this year, if possible, as evidenced by the large attendance at all the scientific sessions. There was little "cutting" of classes. The afternoon lectures were better attended than in 1930 while the Thursday night scientific program, a new feature, had an exceptionally large and interested audience. That the laity are eager for medical knowledge from a recognized source was clearly demonstrated by the large and intelligent body of men and women who filled the Orpheum Theatre for the public meeting, Monday night, October 5. The American public pays many millions of dollars each year to fortune tellers. Its major interests are health, wealth and love, which the soothsayer is smart enough to recognize. The medical profession has been attempting to teach preventive medicine to the public but the subject has hitherto been accepted with about the same degree of enthusiasm as that accorded many other offerings of the doctors, such as elixir of iron, quinine and strychnine, or venetriculin.

The Southwest Clinical Society packed the Orpheum Theatre to the rafters that night. People were standing in the "peanut" gallery for a scientific lecture! Before the lecture, Mrs. James R. Elliott, well-known organist and wife of one of our members, rendered a thirty minute organ program. Dr. J. F. Hassis, president of the Society, presided and gave a short, comprehensive description of the activities of the Society. He then introduced Dr. Joseph Colt Bloodgood, of Baltimore, who spoke on "The Cancer Problem of Today." "Cancer," said Doctor Bloodgood, "is purely a personal matter. It cannot be regulated or controlled by the food, the milk or the water supply." Doctor Bloodgood explained to his audience that fear in the beginning of cancer is helpful, but fear in the end will only make what life is left very miserable. Most people could avoid cancer by showing the proper amount of fear in the beginning when it will do some good. Many people, he said, are like

his wife, whom he described as an intelligent, sober-minded woman, married to a surgeon, but who hesitated to have her child of one year examined for fear the doctors would find something wrong with it. "Cancer of the skin is almost eradicated," said Doctor Bloodgood, "and smoking by women is causing men to smoke in such a way as to eliminate the dangers of cancer of the lip or tongue." He explained that the elimination of cancer lies in the education of the people, which should begin with the local health department and the local medical society. "When a patient dies of appendicitis, somebody has blundered," he said, "but the greatest blunder of all is our present educational system."

There are men in our own locality who can safely diagnose cancer and there is plenty of radium and men and women adequately trained in its use to treat and diagnose cancer, but a false sense of values makes the public pin its faith more on the so-called specialist from abroad to whom a large sum of money is paid to come here and talk. This man is often no better than the local doctors.

Doctor Bloodgood made an especial appeal to women to have proper and regular examinations after childbirth in order to prevent cancer of the cervix, which can be detected early, as likewise can cancer of the breast. These forms of cancer strike only at the mothers of the country and take a heavy toll each year. "What's the use of protecting our children," he asked, "if we let our mothers die?"

Doctor Bloodgood's talk was followed by a short talk by Bishop Robert Nelson Spencer on the annual Charities Campaign. Doctor Hassis then introduced Mr. John Mulholland, of New York, who entertained the audience for an hour with a lecture on "Magic in Medicine." As Mr. Mulholland said, it is a new day in history when the same program and the same platform is shared by a learned doctor, a bishop and a mountebank. This self-styled mountebank exposed charlatans, fortune tellers, magicians, and the like, demonstrating just how the trick was done with such cleverness that he left us in doubt as to whether he were not endowed with the same powers he denied the fakers. Even Bishop Spencer remained an interested spectator to see the rose grow and to watch the "mysterious" oriental hoop trick.

One of the most interesting features of the session was the two day pathological conference conducted by Drs. Joseph Colt Bloodgood and Charles Geschickter, of Baltimore, with thirty pathologists from the Southwest in attendance. This conference was patterned after the one presented each December in Johns Hopkins University and made possible by the



Garvan Foundation fund permitting the making of one hundred identical sections of interesting pathological specimens. Each pathologist sat before his own microscope, viewing identical sections while either Dr. Bloodgood or Dr. Geschickter lectured upon that particular section. Following this, each pathologist wrote upon a paper provided for him his diagnosis of the tissue under discussion. These papers were collected, tabulated and the correct diagnosis, as previously proved by Dr. Bloodgood, Dr. James Ewing of New York and Dr. Frank B. Mallory, Boston, given to the class at large. The many responses received since the week of the meeting indicate the interest and appreciation of this feature by the doctors in attendance.

Drs. Bloodgood and Geschickter also talked for one hour each upon tumors of the breast, bone, oral cavity and pelvis in women before the general assembly of the conference. For this presentation, a battery of four lanterns with four screens upon the platform were used simultaneously so that a comparative study of cases of similar nature might be made. This proved to be a most excellent and spectacular method of presentation, enabling the audience to realize why cases presenting similar clinical evidences require the analytical evidence of the microscope to verify the diagnosis.

The Kansas City Southwest Clinical Society is a subsidiary of the Jackson County Medical Society but in many ways has outgrown the parent organization. The functions of the two societies in their service to the profession and to the community are separate and distinct. One is the direct representative of organized medicine, with local interest; the other furthers the advancement of medical education in the Southwest. The Clinical Society was organized and developed through the driving perseverance and dominating personality of one man, Dr. Edward H. Skinner. The plan of organization has been widely imitated by other groups and is being seriously considered by the American Medical Association as the ideal method of promoting postgraduate medical education.

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## NEWS NOTES

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The American Dental Association at its national convention held in Memphis, Tennessee, October 19 to 24, organized a publicity bureau for the purpose of informing the lay public on the care of the teeth. Newspapers, magazines, radio and other forms of advertising media will be used in this publicity on the prevention of dental trouble.

Dr. J. Curtis Lyter, St. Louis, was the guest of the Randolph (Illinois) County Medical Association October 20 and delivered an address on "The Pathological Physiology of Congestive Heart Failure." A dinner preceded the scientific session.

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Dr. Guido Holzknecht, of Vienna, credited as the discoverer of the therapeutic value of roentgen rays, died October 31 a martyr to his roentgen ray experiments. Overexposure to the rays caused cancer and first a finger and then an arm was amputated in a vain attempt to save his life. He was 60 years old.

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Roentgen ray photographs of the nasal sinuses as a new method of identification which may prove useful to police departments and life insurance companies has been announced by a Washington, D. C., physician, Dr. Thomas A. Poole. Examination of thousands of pictures of sinuses have shown that in no two persons are the shapes of these cavities exactly alike and that the bony partitions forming the sinus cavities never change. Therefore a roentgen ray picture of the sinuses taken at any time during life will be a lasting and positive means of identification.

While thousands of roentgen ray pictures of the sinuses have been taken during recent years, the first suggestion for their use as a means of identification so far as is known was made by a keenly observant patient of Dr. Poole's. This patient had had roentgen ray pictures of his sinuses taken at intervals of several months and noticed that the pictures even after treatment and the lapse of time showed exactly the same shape and size although the cloudiness of outline had cleared after treatment. He called Dr. Poole's attention to this and suggested that if this were a universal condition insurance companies would find it a valuable means of identification. Dr. Poole immediately studied the 2,200 roentgen ray pictures of sinuses in his own collection and then went to New York City where together with other physicians, he examined thousands of roentgen ray pictures in the files of the New York Eye and Ear Infirmary. They found no two pictures alike. Even twins showed differently shaped sinuses. Representatives of an insurance company and of the Washington police force have conferred with Dr. Poole and examined his pictures. Roentgen ray pictures of teeth have occasionally been used to identify persons or dead bodies and possibly roentgen ray pictures of other bony structures might lend themselves to the same use.

The following speakers responded to requests of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component societies:

Drs. Charles H. Neilson and C. H. Eyer-  
mann, of St. Louis, were guests of the Five-  
County Medical Society at Essex, September  
22. Dr. Neilson spoke on "Goiter" and Dr.  
Eyer-  
mann gave a lecture on "Allergy."

On October 9 Dr. Carl B. Schutz, Kansas  
City, visited the Nodaway County Medical So-  
ciety and read a paper on "Dermoid Cysts."  
The meeting was held at Maryville.

Dr. Joseph W. Love, Springfield, was the  
guest of the St. Louis Society for the Blind at  
St. Louis on October 20.

Drs. Frank J. Tainter and Paul S. Lowen-  
stein, of St. Louis, attended the meeting of the  
St. Francois-Iron-Madison County Medical  
Society at Ironton, October 21. Dr. Tainter  
gave a talk on "The Diagnosis of Acute Ab-  
dominal Conditions," and Dr. Lowenstein read  
a paper on "The Injection Treatment of Vari-  
cose Veins."

Drs. Jabez N. Jackson and C. C. Conover,  
of Kansas City, addressed the members of the  
Ninth Councilor District at Mexico, October  
22. Dr. Jackson's subject was "Some Physi-  
ological Considerations in Abdominal Sur-  
gery." Dr. Conover spoke on "The Blood Sup-  
ply to Myocardium in Coronary Disease."

Dr. Paul F. Stookey, Kansas City, gave a  
talk before the Jasper County Medical Society  
at Joplin, October 27, on "Syphilis of the Fe-  
male Genitalia."

Dr. Edgar D. Baskett, Columbia, was the  
guest of the Adair County Medical Society at  
Novinger, October 30, and addressed a public  
meeting on "The Care of the Young Child."  
He also assisted in the examination of school  
children.

The Marion County Medical Society was  
host to Drs. Roland M. Klemme and J. Hoy  
Sanford, of St. Louis, on November 6. The  
meeting was held in the Mark Twain Hotel,  
Hannibal. Dr. Klemme read a paper on "The  
Differential Section of Posterior Root for  
Trigeminal Neuralgia." Dr. Sanford talked on  
"Obscure Abdominal Pain: Importance of  
Careful Urinary Tract Investigation."

The Southwest Missouri Medical Society  
was host to Drs. M. P. Neal, Columbia;  
Charles H. Neilson, St. Louis; Kerwin W.  
Kinard, Kansas City; James R. McVay and  
E. H. Skinner, of Kansas City, at its fall meet-  
ing held at Springfield, November 12. Dr.  
Neal read a paper on "The Leukocyte Count  
as an Aid in the Diagnosis of Infection and as  
an Index to Resistance." "Newer Theories of  
Nephritis" was discussed by Dr. Neilson. "The

Goiter Problem of Today" was the subject of  
Dr. Kinard's address. Dr. McVay talked on  
"The Value of Rectal Examination" and illus-  
trated his subject with lantern slides. Dr.  
Skinner gave a lecture on "Carcinoma of the  
Cervix Uteri; Its Prevention and Treatment,"  
illustrated with lantern slides.

Drs. C. H. Shutt and Fred C. Simon, of St.  
Louis, were guests of the Gasconade-Maries-  
Osage County Medical Society at Mt. Sterling,  
November 19. Dr. Shutt addressed the So-  
ciety on "Gallbladder Disease," and Dr. Simon  
gave a thorough discourse on "Malignant Dis-  
eases of the Accessory Nasal Sinuses."

Swinging children by the arms may result in  
nerve injuries which usually appear imme-  
diately but may not show until some time after  
the damage has been done and the circumstance  
forgotten, Dr. Dwight F. Clark, Evanston, of  
Northwestern University Medical School, told  
physicians in a conference at the Evanston  
Hospital recently. The nerves running from  
the neck down through the arm are so arranged  
that at the brachial plexus the cords are pe-  
culiarly exposed. An overstretching or divi-  
sion of the fibers may lead to the interruption  
of the nervous current supplying the arm or  
may rupture one of the numerous blood vessels  
winding about the nerves. In either case the  
arm may become useless even though no ex-  
ternal injury is visible. The experience of  
surgeons indicates that such cases may require  
operation if neglected, or may even prove in-  
curable. If cared for in time, however, the  
arm can be restored to normal through com-  
paratively simple measures.

Dr. Frank C. Neff, Kansas City, was elected  
president of the Central States Pediatric So-  
ciety at the annual meeting of the society held  
recently in Cincinnati. The 1932 annual session  
will be held in Kansas City during the annual  
fall clinical conference of the Kansas City  
Southwest Clinical Society.

Dr. R. B. H. Gradwohl, St. Louis, addressed  
the Buncombe (North Carolina) County Med-  
ical Society, at Asheville, November 2, on "The  
Usefulness of the Schilling Blood Method in  
Diagnosis and Treatment." While in Ashe-  
ville Dr. Gradwohl was the guest of Dr. O. L.  
Suggett, formerly of St. Louis.

The St. Louis Trudeau Club will meet at  
8:15 p. m. Thursday, December 3, at the St.  
Louis Medical Society Building. An interest-  
ing program has been arranged. Members of  
the State Medical Association are invited to  
attend.



The St. Louis Dental Society will hold its Diamond Jubilee to celebrate the seventy-fifth anniversary of its organization December 7 to 9 at the Hotel Jefferson. The program will include addresses by outstanding dental authorities and discussions on dental health. There will be scientific exhibits including one tracing the progress of dentistry and showing the devices used many years ago. More than 2000 dentists from all parts of the United States are expected to attend. Dr. O. W. Brandhorst, St. Louis, is president of the society.

Members of the St. Louis medical profession are invited to attend the seventeenth annual meeting of the Radiological Society of North America which convenes in St. Louis November 30 to December 4 with headquarters at the Hotel Jefferson.

There will be three scientific sections, the subjects to include roentgen ray diagnosis and treatment of various diseases. Practical clinics and evening sessions on special subjects will follow the scientific sessions. Programs of the meeting may be obtained from the St. Louis Medical Society or at the Hotel Jefferson.

Missouri physicians appearing on the program are: Drs. Edward H. Skinner, Kansas City; Paul F. Cole, Springfield; Charles E. Hyndman, Theodore S. Zahorsky, Horace W. Soper, Evarts A. Graham, L. W. Dean, Vilray P. Blair, David P. Barr and Clarence O. Simpson, St. Louis.

Demonstration that the organism of small-pox is probably a minute spherical body one fifth of a micron in diameter near the lower limit of microscopic visibility was announced at the meeting of the British Association for the Advancement of Science in London September 28 by Professor J. C. G. Ledingham, director of the Lister Institute of London. He made a practically pure suspension of the minute spherical bodies from certain virus diseases and found that they reacted specifically with serum from animals that had recovered from attacks of vaccinia. He also demonstrated the presence of specific agglutinins in the blood serum of a rabbit inoculated with vaccinia.

The cultivation of virus vaccinia in a medium containing no living cells was announced at the meeting by Dr. G. Hardy Eagles of the Lister Institute. He used a medium composed of extract of rabbit kidney, rabbit blood serum and salt solution. He suggests that the cultivation of a virus in a cell-free medium may eventually allow the production of vaccinia in the laboratory without the use of experimental animals.

Dr. Horace W. Soper, St. Louis, entertained four of his former classmates in Washington University School of Medicine at a dinner November 17 at the University Club in St. Louis. The dinner was in honor of Dr. George B. Tuttle of Kalaupapa, Hawaii, a member of the class. Those attending were Dr. Tuttle, and Drs. Albert E. Taussig, Adolph G. Schlossstein and E. J. Goodwin, St. Louis.

A special machine which can detect hardening of the arteries before this condition can be determined by ordinary tests was demonstrated for the first time at the Graduate Fortnight of the New York Academy of Medicine held in New York City, October 19 to 31. The machine was included in an exhibit of new instruments for diagnosing heart disease. Another machine on exhibit automatically registers the heart beats of a patient undergoing an operation thus enabling the physician to tell the condition of the heart without stopping to count the pulse or auscultate the heart. Other displays included an exhibit tracing the growth of the heart in the embryo and one displaying all the known forms of congenital heart disease including hearts of persons who lived despite the presence of holes where heart muscle should be, or who lacked an entire heart valve or the aorta.

Eight conditions of injury or degeneration which occur in the digestive tract before the development of cancer were listed by Professor Matthew J. Stewart of the University of Leeds in a series of lectures delivered before the Royal College of Physicians in London and reported in the *Lancet*. He divided the chief precancerous conditions into three groups, the first consisting of chronic inflammatory conditions, such as sores due to burns and chemical caustics, cirrhosis of the liver, certain diseased conditions of the gallbladder, chronic stomach ulcer, chronic inflammation of the stomach, chronic duodenal ulcer, diverticulitis, hemochromatosis, and leukoplakia. The second group included simple tumors which may be forerunners of cancer and the third consisted of sores or injuries due to animal parasites.

Conditions of the digestive tract that may develop into cancer are not so definitely known as precancerous conditions elsewhere in the body nor are the opportunities so good for preventing cancer of the digestive tract, Professor Stewart pointed out. In one year there were 56,896 deaths from cancer in England and Wales, according to the official figures he quoted, and approximately a half of these cases were referable to the digestive tract.

The library of Dr. T. J. Downing, New London, who died December 7, 1930, has been given to the St. Louis Medical Society by Mrs. Downing in compliance with a request of the doctor before his death. The collection consists of 743 volumes on scientific and related sciences.

A general practitioner is needed in Howell, St. Charles County, Missouri. This is a rural community eighteen miles from St. Charles with an all-weather gravel road connecting. For additional information address Mrs. D. B. Pitman, Box 200, R. F. D., Hamburg, Missouri.

For the thirty-fourth year the Scientific Exhibit of the American Medical Association will be one of the important features of the annual meeting at New Orleans May 9 to 13, 1932. Application for exhibit space must be on a specified form which may be obtained from Dr. Thomas G. Hull, director of Scientific Exhibit, 535 North Dearborn Street, Chicago, and must be submitted before January 20. The committee is making a special plea that no more space be requested than is absolutely necessary for the exhibit in order that the amount of space available may be apportioned to the best advantage. The officers of the Section on Preventive and Industrial Medicine and Public Health and the Section on Practice of Medicine have authorized special exhibits which will be eligible to awards on the same basis as other exhibits. The Section on Preventive and Industrial Medicine and Public Health by means of microscopic preparations, pathologic specimens, pictures, placards, diagrams and apparatus may show: (1) results of experimental and research work in the fields of industrial medicine, preventive medicine and public health; (2) new methods used in industry for the detection of poisons and the control of dust hazards, and (3) new preventive measures in preventive medicine and public health. The exhibit of the Section on the Practice of Medicine may show: (1) the results of experimental and research work in the fields of general medicine; (2) graphic delineations of medical syndromes, statistical studies and results of experimentation and treatment, and (3) the historical development of knowledge of any phase of medicine. Applications for exhibits in the Section on Preventive and Industrial Medicine and Public Health must be filed with Dr. Paul A. Davis, 1436 Delia Avenue, Akron, Ohio, and in the Section on the Practice of Medicine with Dr. Leonard G. Rowntree, Mayo Clinic, Rochester, Minnesota, not later than January 10.

Dr. C. O. Dewey, formerly of St. Joseph, is in charge of the hydrotherapy department of the Clarinda State Hospital, Clarinda, Iowa. One wing of the hospital, left uncompleted at the time the hospital was erected in 1924 and 1925 because of insufficient funds, is being completed and will be used for patients afflicted with diseases amenable to hydrotherapy, baths and electricity. This addition to the institution will accommodate over 300 patients. Dr. Dewey will have offices on the first floor of the hospital.

The 1931 Leslie Dana gold medal was awarded by the St. Louis Society for the Blind to Mr. Edward M. Van Cleve, of New York, at a dinner given at the Missouri School for the Blind, St. Louis, November 20. Mr. Van Cleve spoke under the auspices of the Jacob Lampert Lecture Fund on "The Prevention of Blindness and Its Social Aspect."

The medal was awarded in recognition of Mr. Van Cleve's twenty-five years of outstanding work in the prevention of blindness. He is principal of the New York Institute for the Blind and his former activities include superintendent of the Ohio State School for the Blind, president of the Ohio State Commission for the Blind, pioneer in organizing and first managing director of the association which became the National Society for the Prevention of Blindness, influential member of the World Conference on Work for the Blind in New York City last spring called by President Hoover, and an active worker in the American Foundation for the Blind, the American Association of Instructors for the Blind, the American Printing House for the Blind and the American Association of Workers for the Blind.

The sixteenth annual clinical session of the American College of Physicians will be held in San Francisco, California, April 4 to 8, 1932. The headquarters will be in the Palace Hotel which will also house the general scientific sessions, registration and exhibits. Clinics will be conducted in various hospitals and medical institutions in San Francisco and near-by communities. Dr. S. Marx White, Minneapolis, president of the College, is in charge of the selection of speakers and subjects on the general program and Dr. William J. Kerr, San Francisco, is the general chairman of the session and in charge of local arrangements. Following the San Francisco session a post-convention tour will be conducted through the Yosemite Valley, Southern California and the Grand Cañon of Arizona.



Beginning in January a magazine devoted to book reviews will be published for the blind. The publication is sponsored by the American Braille Press and the Henry F. Homes Fund of the New York Public Library. A sample issue of sixty-four pages was published in November. Distribution will be free to blind readers throughout the world except for a small registration fee. The new periodical, called the *Braille Book Review*, will be the first of its kind and will include in addition to reviews, biographies of contemporary writers and essays on literature. The magazine is edited by Lucille A. Goldthwaite, librarian of the Department for the Blind in the New York Public Library.

Congress recently appropriated \$100,000 for the publishing of books in braille. Between 120 and 130 works hitherto unavailable to the blind because of the large investment required for braille printing without profit to publishers, will be printed from the appropriation. All the books published through this subsidy will be reviewed in the *Braille Book Review*. In addition to the new publication ten other magazines for the blind are published by the American Braille Press.

New methods of research into the cause of cancer and of certain obscure blood diseases is a suggestion offered by Dr. Harrison S. Martland, Newark, medical examiner of Essex County, in the *American Journal of Cancer*. Dr. Martland reviewed cases of radium dial painters and showed that cancer occurs in radioactive persons, the disease developing from the constant bombardment on the victim's tissues by the alpha particles emanating from the radium which dial painters absorb and which is stored in their bones. This suggests new methods of producing experimental cancer but, more important, it suggests that since very small amounts of radium taken into the bodies of the watch dial painters quickly produced cancer, the occurrence of other forms in many may result from much smaller amounts of radioactive substances present in the body over long periods of time. These amounts would be too small to measure or even to detect by present methods.

How these minute amounts of radioactive substances get into the body Dr. Martland does not explain. The human body is normally radioactive to a very small degree and in its normal environment is exposed to minute amounts of radioactive substances. He states, "Theoretically the exposure to or use of any substance that will increase the normal radioactivity of the body is dangerous." For this reason he strongly recommended proper medi-

cal supervision of the use of radium and the roentgen ray for purposes of treatment of disease and government control over industries and occupations in which exposure to radioactive substances takes place. Dr. Martland raised the question whether even now the luminous watch dial industry is safe inasmuch as a report of the United States Public Health Service states that in spite of the utmost care and precaution against undue exposure girls who work under the new methods still become radioactive and show an average of one half a microgram of radioactive substance in their bodies. He considers less than one half of a microgram of radioactive substance in the body is dangerous.

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The Medical Association of the State of Alabama in cooperation with the state board of health began the issuance of a medical journal with the July, 1931, number. The periodical called the *Journal of the Medical Association of the State of Alabama and of the State Board of Health* is owned and published each month by these two organizations. The first issue included the president's address, two scientific articles, editorials, proceedings of the association and department of public health, county society news, abstracts and reviews. It is a well organized publication, carefully edited and a useful addition to the group of state medical publications.

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The Aero Medical Association of the United States, an organization composed of army and navy flight and examining physicians for the aeronautics branches of the Department of Commerce, met in Kansas City, September 6, 7 and 8. Fifty-two members representing seventeen states attended the meeting. Nine members from the profession in Missouri who attended the meeting were: Drs. W. M. Bickford, Marshall; Charles T. Reid, Joplin; E. C. Grim, Kirksville; C. M. Waugh, Tarkio; W. P. Donovan and H. J. Rudi, St. Louis, and Wade Hampton Miller, Peter T. Bohan, and A. W. McAlester, Kansas City.

The program was of a technical nature, all subjects bearing a direct relationship to flying. The 1932 meeting will be held next August in Cleveland during the national air races.

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Dr. Otto H. Warburg, Berlin, Germany, scientist and cancer specialist, was awarded the 1931 Nobel Prize in medicine October 29 for his studies of the respiratory organs. Last year's Nobel Prize in medicine was awarded to Dr. Karl Landsteiner, of New York City.

The Jackson County Medical Society celebrated the fiftieth anniversary of its organization by a Semi-Centennial Jubilee October 6 in conjunction with the ninth annual fall conference of the Kansas City Southwest Clinical Society. Dr. E. H. Skinner, Kansas City, presided at the meeting which was held in the Assembly Room of Hotel President.

Among the five hundred guests present were Dr. J. S. Mott, Kansas City, one of the original organizers of the Society and Dr. Charles W. Burrill, one of the early members, both of whom have practiced in Kansas City for fifty years.

Speakers of the evening were Dr. E. Starr Judd, Rochester, President of the American Medical Association, who chose for his subject "The Function of the County Medical Society in the General Plan of the American Medical Association"; Dr. E. H. Cary, Dallas, President-Elect of the American Medical Association, who discussed "A Few Observations on Our Relation to the Public," and Dr. W. C. Gayler, St. Louis, past president of the Missouri State Medical Association, who talked on "The Country Doctor of the Future." Dr. M. A. Hanna, Kansas City, gave a brief sketch of the history of the Society.

Other guests present included Dr. J. Frank Harrison, Mexico, President, Dr. Joseph W. Love, Springfield, President-Elect, and Dr. E. J. Goodwin, St. Louis, Secretary-Editor, of the Missouri State Medical Association; Dr. D. A. Rhinehart, Little Rock, president of the Arkansas Medical Society; Dr. E. C. Duncan, Fredonia, president of the Kansas Medical Society; Dr. K. S. J. Hohlen, Lincoln, president of the Nebraska State Medical Association, and Dr. Henry C. Weber, Bartlesville, president of the Oklahoma State Medical Association.

The program of the Golden Jubilee and a historical sketch of the Jackson County Medical Society written by Dr. M. A. Hanna were attractively published in booklet form with black suede cover monogrammed with the seal of the Society.

The latest methods used at the New York quarantine station of the United States Public Health Service in fumigating loaded ships were recently observed by a group of experts appointed by a special commission of the Health Section of the League of Nations who reported that they were highly pleased with the methods. They presented a report of their investigations to the League of Nations in November. Surgeon General Hugh S. Cumming, United States Public Health Service, is chair-

man of the committee of experts and other members are from England, Spain, Holland, France and Germany.

Ships are fumigated to destroy rats and vermin that might carry disease, thus protecting seaports and nations from importation of disease. The United States Public Health Service seems to have met this difficult problem satisfactorily. The method, as described by Dr. Charles L. Williams of the United States Public Health Service, consists in spraying liquid hydrocyanic acid under a pressure of 75 to 100 pounds, the airjet sprayer being an adaptation of the ordinary oxyacetylene blow-pipe with the hydrocyanic acid connected with the acetylene side and the compressed air to the oxygen side. This method was most successful in forcing the fumigating material into all parts of the ship. Other methods of fumigation will still be satisfactory on the ordinary ship which does not present special problems such as heavy rat infestation or inaccessibility due to large cargoes.

A stereofluoroscope roentgen ray instrument that shows the inner workings of the human body as though it were a motion picture has been perfected at the California Institute of Technology, Pasadena, and practical medical experiments will be conducted at the Henry Phipps Institute in Philadelphia. Several months ago a rough experimental model was completed and when it proved successful funds were secured from the Rockefeller Foundation for the construction of a more elaborate instrument designed for use in hospitals. The instrument is so constructed as to give the impression of a three-dimensional stereoscopic plastic relief, and calipers are provided that can be introduced into the image and brought into apparent contact with any two parts of the image whose separation or size is desired.

The greater importance of food over cleanliness in the prevention of tooth decay and the responsibility of the physician rather than the dentist for proper tooth formation were stressed by Edward Clay Mitchell, D.D.S., Memphis, Tennessee, at the meeting of the American Dental Association in Memphis in October. "Although we do not wish to discourage proper mouth hygiene yet it has been definitely shown that a properly fed tooth will not become carious even in a dirty mouth," Dr. Mitchell said and pointed out that teeth require feeding the same as any other structure in the body and that it is the physician who must teach the mother to watch her own and later her baby's diet in order to insure healthy teeth for the child.



The growing outside the human body of six generations of an organism which may be the offending agent and the causation of infantile paralysis has been reported to *Science Service* by Dr. Frederick Eberson, San Francisco, director of clinical laboratories and research of the Mt. Zion Hospital, San Francisco. Tissue from sheep and human brains was used as a medium this being suggested by the success with brain tissue in cultivating the germ of another disease which attacks the nervous system. Virus from the spinal cord of a monkey afflicted with infantile paralysis provided the original material for the research. After from eight to ten days of growth on this special medium of brain tissue, tiny organisms could be seen when the culture was stained and viewed through a microscope. This material was transplanted to a new culture medium and a new generation of virus grew. This has been continued for six generations.

The organism showed three stages of growth, one being invisible under the microscope although the culture medium is cloudy, another stage is of visible globular bodies with pale centers, the last stage being clusters of minute ovoid bodies about one fifth the size of small cocci. The germs appear to have a surrounding envelope that favors adhesion of the organisms forming peculiar colonies. Studies of the behavior of this artificially grown organism in the bodies of monkeys is now being made as well as studies on immunization and serum production.

More than \$2,500,000 is being wasted annually on unnecessary and even hazardous ventilating systems for schools, Dr. C. E. A. Winslow, professor of the public health department at Yale University, estimated in a report published recently by the New York Commission on Ventilation of which Dr. Winslow is chairman. The commission found that twenty states still have laws or other regulations concerning ventilating devices which are based on disproved or antiquated theories although scientific knowledge on the proper ventilation of buildings has been extant for more than twenty-five years. The evidence gathered during the investigation indicated that the window-gravity method of ventilation in the absence of specific unfavorable conditions is more satisfactory than the fan system because it maintains more uniform temperature, humidity and air movement.

Among other things, the Commission recommended maintenance of 65 degrees of temperature in corridors, gymnasiums and shops; of 75 degrees in swimming pools and adjacent

dressing rooms and 68 degrees in all other occupied rooms; the avoidance of overheating; allowance of at least fifteen square feet of floor space and two hundred cubic feet of air space per pupil in all classrooms and an accurate thermometer for each room.

The following articles have been accepted for New and Nonofficial Remedies:

Lederle Laboratories, Inc.

Diphtheria Toxin-Antitoxin Mixture (0.1 L +) 3 syringe packages

Pollen Antigens—Lederle, Series D packages

Prostrate Pigweed Pollen Antigen—Lederle

Summer Cypress Pollen Antigen—Lederle

Thromboplastin Local—Lederle

H. K. Mulford Co.

Tuberculin Intracutaneous (Human Type) 3 c.c. vial packages

Tuberculin Intracutaneous (Bovine Type) 3 c.c. vial packages

Parke, Davis & Co.

Glaseptic Ampoules Solution Glucose, 50 per cent, 100 c.c.

Scarlet Fever Streptococcus Toxin for Preventive Immunization—P. D. & Co., six 1 c.c. vial packages

Typhoid-Paratyphoid Vaccine (Prophylactic) ten 2½ c.c. vial packages

Typhoid Vaccine (Prophylactic) ten 2½ c.c. vial packages

E. R. Squibb & Sons

Neocinchophen—Squibb

Tablets Neocinchophen—Squibb, 5 grains

Frederick Stearns & Co.

Synephrin Tartrate—Stearns

Synephrin Tartrate Solution, 3 per cent

Synephrin Tartrate Solution, 5 per cent

Synephrin Tartrate Emulsion Plain

Synephrin Tartrate Emulsion Compound

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1931, p. 477):

Arzol Chemical Co.

Silver Nitrate Applicators (Silver Nitrate 75 per cent)

E. R. Squibb & Sons

Cinchophen—Squibb

#### FRECKLES

Freckles are really not a disease but a protective reaction on the part of the skin to intense sunlight. Their function may be to protect the delicate ends of the skin nerves. They are best left alone, but if treatment is desired, it should be under the guidance of a physician since most freckle creams on the market contain poisonous ingredients that may do harm, asserts Dr. Norman Tobias in *Hygeia*.

## OBITUARY

### JACOB L. WALKER, SR., M.D.

Dr. Jacob L. Walker, Union, a graduate of Barnes Medical College, St. Louis, 1899, died in the Missouri Baptist Hospital, St. Louis, March 16, of cerebral hemorrhage and arteriosclerosis, aged 69.

Dr. Walker entered general practice following the completion of his medical studies and was well liked by his patients. While he numbered many members of the medical profession as friends who held him in high respect he did not become allied with organized medicine until in 1928. He was elected a member of the Franklin County Medical Society October 17, 1928, and became as interested in Association activities as he had been devoted to his practice. He was a Fellow of the American Medical Association.

### GEORGE W. KOENIG, M.D.

Dr. George W. Koenig, St. Louis, a graduate of Washington University School of Medicine in 1904, shot and killed himself in his office November 7, insomnia and financial reverses being responsible according to a note. He was 58 years old.

Dr. Koenig interned in the St. Louis City Hospital previous to entering general practice. He later practiced industrial surgery.

Dr. Koenig was a member of the St. Louis Medical Society, the State Medical Association and a Fellow of the American Medical Association. He was well liked and respected by his colleagues and many friends mourn him.

### EDWARD F. BIEWEND, M.D.

Dr. Edward F. Biewend, St. Louis, a graduate of the St. Louis College of Physicians and Surgeons, 1886, died October 20 of a heart stroke following an operation in St. Anthony's Hospital. He had been ill for a year preceding the operation. He was 78 years old.

Dr. Biewend was born in St. Louis and received his preliminary and part of his medical education there. He studied in Germany under Dr. Robert Koch, his cousin, for several years following the completion of his medical course. He began practice in Collinsville, Illinois, but soon located in St. Louis. During the later years of his practice he confined his work to tuberculosis.

Dr. Biewend was a member of the St. Louis Medical Society, the State Medical Association and a Fellow of the American Medical Association. He was devoted to his profession and was held in high esteem by his colleagues.

He was also interested in other activities and had a large circle of friends outside the medical profession.

Dr. Biewend is survived by his widow, Mrs. Elizabeth Biewend, one daughter and three grandchildren.

## CORRESPONDENCE

### ANDREW WALKER McALESTER MEMORIAL FOUNDATION

Columbia, Missouri, November 5, 1931.

*To the Editor:*

It is gratifying to report to the members of the Missouri State Medical Association that the McAlester Memorial Foundation for the teaching of the laity is now fully organized and beginning to function. The curators of the University of Missouri have accepted the trust and all interests are now ready to cooperate in this work. Our State Association has shown great interest from the beginning of the work and the members of our Postgraduate faculty are volunteering their services.

Without one cent of money in the treasury for stamps or current expenses and without one dollar of endowment but with a profession generous with their time and talents, we have vast assets with which to begin our work and we expect to accomplish much. With a modest endowment and the continued sympathetic interest of our members more may be done. With an endowment of one million dollars, which is our hope, we can surely illuminate the dark places and annihilate much ignorance.

The continued active interest of our organized profession is our major asset, the board of managers feels. The board of which Dr. M. P. Ravenel, Columbia, is secretary, is in a receptive mood for contributions either for the permanent endowment fund or for current expenses. Contributions of twenty-five, ten or five dollars from those who may feel the spirit of donation will be very encouraging.

Keep in mind always the kindly philanthropist who may wish to do the most good for humanity and show him the way.

FRANK G. NIFONG, M.D.

### SCIENTIFIC EXPERIMENTS ISOLATE FOOD ELEMENTS

The value of laboratory experiments in the field of foods is pointed out by Lawrence H. Baker in *Hygeia*. In natural forms the substance that benefits the human body is often mixed with harmful impurities that may retard its action when taken into the human body.

As soon as a plant or animal tissue is found to yield a substance possessing medicinal value, scientists and the atom chasers seek to isolate the active principles and to reduce them to their utmost simplicity.



## SOCIETY PROCEEDINGS

### COUNTY SOCIETY HONOR ROLL FOR 1931

(UNDER THIS HEAD WE LIST SOCIETIES WHICH  
HAVE PAID DUES FOR ALL THEIR MEMBERS)

#### HONOR ROLL

Mercer County Medical Society, December 5, 1930.  
Miller County Medical Society, December 27, 1930.  
Chariton County Medical Society, December 30, 1930.  
Macon County Medical Society, February 19, 1931.  
Pulaski County Medical Society, March 11, 1931.  
Dent County Medical Society, April 15, 1931.  
Mississippi County Medical Society, April 25, 1931.  
Atchison County Medical Society, May 4, 1931.  
Barry County Medical Society, May 15, 1931.  
Lafayette County Medical Society, May 23, 1931.  
Putnam County Medical Society, July 7, 1931.  
Schuyler County Medical Society, August 15, 1931.  
Reynolds County Medical Society, October 15, 1931.  
Platte County Medical Society, October 27, 1931.

#### ADAIR COUNTY MEDICAL SOCIETY

The regular monthly meeting of the Adair County Medical Society was held November 5 in the office of Dr. J. W. Martin, Kirksville. Dr. Martin called the meeting to order at 8:00 p. m. The minutes of the October meeting were read and approved.

A general discussion followed on the decrease in the income of physicians in this territory. The opinion seemed to prevail that the average decrease was in the neighborhood of twenty-five per cent.

Dr. J. F. Dodson, Kirksville, believed that many people go to free clinics while others dispense with medical care because they are unable to pay. The members feel that the county physician should attend as many indigent patients as possible and relieve the private practitioners in this particular. One member reported that he had attended the child of a physician in a town sixty miles from Kirksville charging only his expenses and then being called the following week to the home of a close neighbor, on the latter occasion making a full charge. The family of the second patient was very much incensed and dismissed the doctor because he had charged the regular fee instead of his expenses only.

Dr. Spencer L. Freeman, Kirksville, showed a motion picture entitled, "Traumatic Surgery of the Extremities," which was very instructive and complimented on by the members.

Dr. J. S. Gashwiler, Novinger, thanked the Society for furnishing examiners for the examination of school children at Novinger. The physicians and nurses taking part in the examination were: Drs. E. D. Baskett, Columbia; Spencer L. Freeman, Kirksville; J. S. Gashwiler, Novinger; G. N. Dailey, Kirksville; Miss Mary Berry, Kirksville; Mrs. Gladys McNalley Steele, Novinger.

The officers elected for 1932 are: President, Dr. Spencer L. Freeman, Kirksville; vice president, Dr. Ralph O. Stickler, Kirksville; secretary-treasurer, Dr. J. S. Gashwiler, Novinger; delegate, Dr. E. S. Smith, Kirksville. Board of censors: Drs. J. F. Dodson, Spencer L. Freeman and E. C. Grim, of Kirksville.

The Society adjourned to meet December 3 for dinner and installation of officers.

J. S. GASHWILER, M.D., Secretary.

### ASSOCIATION OF ASSISTANT PHYSICIANS OF MISSOURI HOSPITALS

#### Morning Session

A meeting of the Missouri State Hospital physicians was held at State Hospital No. 3, Nevada, October 19. President T. R. Frazer, of Fulton, presided. The address of welcome was given by Dr. F. M. Grogan, superintendent of State Hospital No. 3. Dr. Scott P. Child, of the Missouri State Sanatorium for Tuberculosis, Mount Vernon, responded. The minutes of the June 28 meeting were read and approved.

On motion of Dr. T. T. O'Dell, Nevada, seconded and carried, the president was instructed to appoint a committee to draw up plans for the next meeting. Dr. Frazer appointed the following committee: Drs. F. H. Maples, Marshall; T. S. Lapp, Fulton, and Fred Long, Farmington.

Dr. T. T. O'Dell, Nevada, read an interesting paper on "The History of Syphilis."

Dr. Katherine Suyetoff, Nevada, gave a talk on "The Diagnostic Features of Syphilis of the Central Nervous System," which included a classification of the different types of neurosyphilis, the clinical findings and symptomatology of each, and with a resume of the tissues involved. Cases were presented typifying the various classes.

A discussion of the two papers followed.

#### Afternoon Session

The meeting was called to order at 1:30 p. m. by the president, Dr. T. R. Frazer, Fulton.

"The Pathology of Syphilis of the Central Nervous System" was the subject of a paper read by Dr. Clifton Smith, St. Joseph. Included in this paper was a description of the gross and microscopic appearance of syphilis in the various tissues associated with the central nervous system and a description of the pathogenesis.

Dr. T. S. Lapp, Fulton, spoke on "The Treatment of Syphilis of the Central Nervous System," and discussed the most appropriate and modern treatment applicable to the various types of neurosyphilis.

The papers were freely discussed.

The program for the next meeting was discussed and the advisability of a guest speaker was considered.

There was a large attendance and everyone enjoyed the hospitality of Superintendent Grogan, the staff members and hospital personnel.

G. W. FORMAN, M.D., Secretary.

### ATCHISON COUNTY MEDICAL SOCIETY

For the first time in two years the Atchison County Medical Society met at Tarkio, November 3. There were five members present. The following officers were elected to serve during the ensuing year: President, Dr. Charles E. Benham, Tarkio; vice president, Dr. George W. Lott, Westboro; secretary-treasurer, Dr. Austin McMichael, Rockport (relected); delegate to the State Meeting, Dr. E. B. Kenner, Westboro.

Dr. E. B. Kenner, Westboro, pleaded for better and more frequent meetings and moved that the Society unite with Holt and Nodaway counties in an effort to organize a tri-county medical society. The motion was seconded and carried.

The next meeting will be held at Rockport, January 4, 1932, at 8:00 p. m.

E. B. KENNER, M.D.

### CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met in regular session at the Snapp Hotel, Excelsior Springs, October 29, at 6:30 p. m. About twenty members and their wives sat at the table for dinner, served by the Snapp in the customary friendly way. There were no visitors at this meeting, just home folks. The weather was unfavorable for a larger meeting. Dr. and Mrs. W. H. Goodson were the only members from Liberty. Dr. S. D. Henry, Excelsior Springs, vice president, presided over the scientific deliberations in the absence of President W. C. Hamilton, of Kearney.

Dr. O. S. Wilfley, of the United States Veterans' Hospital, Excelsior Springs, opened the program with a talk on "Gastric and Duodenal Ulcer."

Dr. C. H. Suddarth, Excelsior Springs, reported a case of "Subphrenic Abscess, with Rupture of Duodenum." The patient recovered.

Both essayists were well supplied with skiagrams fully illustrating their subjects.

The program was interrupted by an unexpected invitation to witness a technical autopsy at the Veterans' Hospital conducted by Dr. J. V. Dauksys, of that institution. The case was one of unusual interest, the patient having been attended by a number of members on different occasions during his life. The case was that of a young man "breaking the record" in bicycle riding who suddenly developed a profound leukemia, or some allied condition, which set our best diagnosticians afloat "on a wild, wild sea." The best known modern agencies had been used but gave only phantom-like periods of encouragement to reward strenuous effort. The boy succumbed after months of heroic fighting.

Two of our older members have been stricken—disabled by illness of some two years. The Society remitted their delinquent dues and retained them in full fellowship.

J. J. GAINES, M.D., Secretary.

### CHRISTIAN COUNTY MEDICAL SOCIETY

The first fall meeting of the Christian County Medical Society was held at Ozark, October 16.

Dr. H. J. Wise, Sparta, read a paper on a case of pregnancy with an unusual complication that he had attended. The patient is the mother of four children and was having pain as if in labor. She gave a history of an injury to the abdomen about two weeks before Dr. Wise was called in. On examination he found a large mass on the left side. Incision disclosed a rupture of the diaphragm on the left side

with the stomach and a portion of the intestines extending through the opening into the pleural cavity. Efforts to bring the viscera down into the abdominal cavity were fruitless because the viscera would return to the pleural cavity on release. A cesarean section was performed and the diaphragm repaired.

Dr. W. B. Wasson, Nixa, reported a case of "Undulant Fever and Treatment with Serums." He related that the cases recovered under this treatment.

F. H. BROWN, M.D., Secretary.

### JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at Joplin, October 13. The president being absent Dr. H. L. Wilbur, Joplin, was appointed to the chair by acclamation, and Dr. B. E. DeTar, Joplin, acted as secretary. The minutes of the last meeting were read and approved.

A letter was read from Mr. Kibler, of the extension division of the University of Oklahoma, in regard to a course in traumatic and orthopedic surgery. No action was taken because of the expected visit of Mr. Kibler.

Dr. R. M. James, Joplin, presented a case of pregnancy complicated by valvular heart disease. The advisability of therapeutic abortion was discussed freely.

Dr. R. M. Stormont, Webb City, presented a case of syphilis of the stomach.

Dr. L. B. Clinton, Carthage, reported a case of lead poisoning.

The principal speaker of the evening was Dr. A. Benson Clark, Joplin, who gave a talk on "An Unusual Obstetrical Case," one with a pin-point cervical stenosis. The discussion was led by Drs. S. H. Miller, L. B. Clinton, and E. D. James.

#### Meeting of October 27

The meeting was called to order by the president, Dr. L. C. Chenoweth, Joplin, with eighteen members and ten visitors present. The minutes of the last meeting were read and approved.

Mr. Kibler presented the plan of the extension course provided by the University of Oklahoma in traumatic and orthopedic surgery. The Society gave its approval of the plan. Mr. Kibler will interview each member in an effort to organize a class in traumatic and orthopedic surgery.

The president announced that the Woman's Auxiliary desires to have one of our members appointed as their counselor. Dr. E. D. James, Joplin, was appointed.

The application of Dr. J. W. Hardy, Jr., Joplin, was read and referred to the board of censors.

The scientific program was presented by Dr. Paul Stookey, Kansas City, through the courtesy of the Postgraduate Committee of the State Association. He gave a lecture on "Syphilis of the Female Genitalia" illustrated with lantern slides, some in natural colors. The subject was interestingly and thoroughly presented by the speaker and a free discussion by the members followed.

#### Meeting of November 3

There were fifteen members and two visitors present at this meeting. The minutes of the last meeting were read and approved.

The application for membership of Dr. J. W. Hardy, Jr., Joplin, was approved by the board of censors. On vote by ballot Dr. Hardy was unanimously elected to membership.

The secretary, Dr. O. T. Blanke, Joplin, requested that action be taken regarding the disposal of the



books and current magazines sent to the Society by the State Association. After considerable discussion the president appointed a library committee composed of Dr. M. O. Coombs, Dr. S. B. Grantham and Dr. O. T. Blanke.

The secretary asked for an expression regarding the arrangements for one or more public meetings. He was instructed to get in touch with one or two possible speakers and if a mutually convenient date can be decided upon such a public meeting will be held.

Dr. S. A. Grantham, Joplin, presented a young man injured in an automobile accident who had a compression fracture of the first lumbar without cord involvement. Within a week following the accident his back was splinted with a tibial graft by the tunneling method. The patient made an uneventful recovery, being able to walk from the hospital in four weeks' time. Two weeks later he was able to resume his work and has been without complications since then.

Dr. Grantham also presented a patient with a fracture of the first lumbar of three years' standing, following an accident in which the patient's back was jack-knifed when a slab fell on him. He developed cord pressure symptoms with scattered areas of anesthesia, some interference with the motion of the lower extremities, and bladder disturbance. A laminectomy was done and within twenty-four hours most of the anesthesia areas were greatly improved and the control of the lower extremities also improved. This case was illustrated with skiagraphs. Dr. P. W. Walker, Joplin, who had examined the patient, reported on the preoperative bladder symptoms and was of the opinion that the patient had a good chance for the return of normal functional control.

Dr. W. S. Loveland, Joplin, reported an intra-trochanteric fracture of the left femur with splitting off of the lesser trochanter in a woman aged 78, five feet tall and weighing 73 pounds. Because of economic conditions the patient did not enter the hospital. There was a general discussion of the best method of handling this case under the circumstances.

#### Meeting of November 10

The president, Dr. L. C. Chenoweth, Joplin, called the meeting to order with twenty members present. The guest of the Society was Dr. A. S. Welch, Kansas City, who was sent to us by the Postgraduate Committee of the State Association.

The library committee reported that the management of the Frisco Building had offered the Society the use of a room free of charge. It was decided that the books and periodicals at present stored in the basement of the public library, unless they could be disposed of as antiques, would not be worth moving.

Dr. A. S. Welch, professor at the University of Kansas School of Medicine, gave a talk on "The Clinical Interpretation of Essential Laboratory Reports." He emphasized the value of those procedures which would be of definite value and suggested that those of scientific interest should be omitted because of no essential aid. He covered the numerous essential procedures and indicated their clinical value in a very comprehensive manner. It was generally felt that his discussion gave one a better view of the relation of laboratory reports to clinical medicine.

#### JOHNSON COUNTY MEDICAL SOCIETY

The Johnson County Medical Society met at Warrensburg, September 16, with the members of the

societies of Lafayette and Henry counties as guests. Dr. Peter T. Bohan, Kansas City, was the outstanding guest and conducted a large clinic.

The meeting was attended by a large number of Johnson County members and Lafayette and Henry counties were well represented.

J. A. POWERS, M.D., President.

#### MARION COUNTY MEDICAL SOCIETY

The regular meeting of the Marion County Medical Society was held November 6 in the Mark Twain Hotel, Hannibal. A dinner in the Silver Room preceded the scientific meeting. Dr. C. W. Hamlin, Palmyra, president, called the meeting to order at 8:00 p. m. The Postgraduate Committee of the State Association sent us two speakers, Drs. J. Hoy Sanford and Roland M. Klemme, of St. Louis.

Dr. Sanford, the first essayist of the evening, read an excellent paper on "Obscure Abdominal Pain; Importance of Careful Urinary Tract Investigation."

Dr. Klemme spoke on "The Differential Section of Posterior Root for Trigeminal Neuralgia."

Both subjects were very instructive and thoroughly enjoyed by the members.

Members present: Drs. J. C. Chilton, H. O. Daniel, J. J. Farrell, W. F. Francka, H. B. Goodrich, J. W. Hardesty, E. T. Hornback, E. M. Lucke, E. R. Motley, C. E. Salyer, U. S. Smith, W. J. Smith, and F. E. Sultzman, of Hannibal; C. W. Hamlin and W. C. O'Neal, of Palmyra; W. D. Pipkin, Monroe City; P. J. Reichmann, Oakwood. Guests: Drs. E. J. Cada, R. A. Harris, S. R. Hoover, Jr., H. J. Jurgens, T. B. Knox, and A. E. Perley, of Quincy, Illinois; George L. Drennan and T. O. Hardesty, of Jacksonville, Illinois; P. H. Dechow, Kinderhook, Illinois; M. C. McMurphy and J. F. Flynt, of Paris, Missouri; W. T. Waters, New London, Missouri.

FRANCIS E. SULTZMAN, M.D., Secretary.

#### NINTH COUNCILOR DISTRICT

The annual meeting of the Ninth Councilor District, composed of the counties of Audrain, Boone, Howard, Callaway and Montgomery, was held at Mexico, Thursday, October 22. The guest speakers were Dr. Jabez N. Jackson, Kansas City, past president of the Missouri State Medical Association and of the American Medical Association, and Dr. C. C. Conover, Kansas City. Other guests were Drs. Emmett P. North and E. J. Goodwin, and Mr. Elmer E. Bartelsmeyer, of St. Louis.

In the afternoon Dr. Jackson spoke before the Parent-Teachers Association and to the students of the Mexico High School at the school auditorium. Dr. Conover delivered an address at the Missouri Military Academy to which the public had been invited.

These addresses were given under the auspices of the administrative committee of the Andrew Walker McAlester Memorial Foundation, organized by the friends and former students of the late Dr. A. W. McAlester, of Columbia, commemorating his long life of service to his fellowmen, as pioneer physician and surgeon, teacher and dean of the School of Medicine of the University of Missouri, member and president of the State Board of Health, and first health commissioner of the State of Missouri. The administrative committee includes two members of the Missouri State Medical Association, one member of the faculty of the University of Missouri School of Medicine, one member of the veterinary department of the State University, one member of the alumni association of the medical school, and two

members to be chosen by the organized contributors to the Foundation.

It was remarked that the addresses by Drs. Jackson and Conover were the first ones to be delivered under the auspices of the Foundation, thus marking the beginning of the activities of the organization although it is without funds. The sponsors of the Foundation anticipate that money will soon be donated so that the officers may begin functioning and arrange for eminent men to deliver addresses to lay organizations, schools and colleges on the development of medical science and instruct the people how to cooperate with the medical profession in the prevention and control of disease.

A six o'clock dinner was served at the Mexico Country Club by the Audrain County Medical Society. A scientific session followed the dinner at which Dr. A. R. McComas, Surgeon, Chairman of the Council and Councilor of the Ninth District, presided.

Dr. Jackson delivered an address entitled "Some Physiological Considerations in Abdominal Surgery," and Dr. Conover spoke on "The Blood Supply to the Myocardium in Coronary Disease."

## RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

### October Meeting

The October meeting of the Randolph-Monroe County Medical Society was held at Moberly with the president, Dr. D. A. Barnhart, Huntsville, in the chair.

In a rather informal way, fees and services in general were discussed. Dr. Thomas S. Fleming, Moberly, suggested that \$2 be charged for day calls and \$3 for calls after 7:00 p. m. No action was taken.

Dr. L. O. Nickell, Moberly, presented a paper on "Ischiorectal Abscesses," which was well received.

The following members were present: Drs. J. F. Flynt and M. C. McMurphy, of Paris; R. A. Woods, Clark; D. A. Barnhart, Huntsville; P. C. Davis, C. H. Dixon, L. E. Huber, F. L. McCormick, and L. O. Nickell, of Moberly.

### November Meeting

In the absence of the president Dr. F. L. McCormick, Moberly, presided.

Arrangements for the December meeting were discussed. Drs. L. O. Nickell and T. S. Fleming, of Moberly, were appointed to arrange for this meeting which will be held in the Merchants Hotel. There will be a dinner at 6:30 p. m. Dr. R. L. Sutton, Kansas City, will be invited to address the meeting. Election of officers will also be held.

Dr. C. C. Smith, Moberly, presented a most interesting paper on "Varicose Veins and Their Treatment."

Members present were: Drs. P. C. Davis, L. E. Huber, Max Kaiser, F. L. McCormick and L. O. Nickell, of Moberly. Visitors: Drs. George Hawkins and Florian Harms, of Salisbury.

THOS. S. FLEMING, M.D., Secretary.

## SOUTHEAST MISSOURI MEDICAL ASSOCIATION

The Southeast Missouri Medical Association held its fifty-fifth annual meeting in the Methodist Church at Campbell, Tuesday and Wednesday, October 6 and 7, 1931. On Tuesday evening a six o'clock dinner was served in the basement of the

church by the ladies of the missionary society. There were in attendance about one hundred and fifty physicians all of whom expressed their appreciation of a good meeting.

The invocation was given by Rev. L. E. Pryor, Campbell. Solos were rendered by Mrs. Alma Rice and Miss Marjorie Ashcraft, of Campbell. Rev. J. C. Wicker, Campbell, gave the address of welcome and Dr. Paul Baldwin, Kennett, responded. Dr. J. Lee Harwell, Poplar Bluff, president, delivered the annual presidential address. "Shop Talk" was the title of a paper read by Dr. George W. Vinyard, Jackson. Memorial exercises were held for Dr. J. B. Eure who died June 12, 1931.

The scientific sessions consisted of papers and discussions on the following subjects:

"Malaria in Southeast Missouri," by Dr. W. J. Rutledge, Campbell.

"Public Health and Dental Education," by C. B. Coleman, D.D.S., Poplar Bluff.

"Fractures of the Upper End of the Femur," by Dr. J. Edgar Stewart, St. Louis.

"Encephalitis Lethargica," by Dr. T. R. Frazer, Fulton.

"Unusual Obstructions of the Upper Urinary Tract," by Dr. Neil S. Moore, St. Louis.

"Senile Enlargement of the Prostate Gland," by Dr. Russell A. Hennessey, Memphis, Tenn.

"The Misuse of Purgatives in the Acute Abdomen," by Dr. B. J. Macauley, Poplar Bluff.

"Neonatal Care," by Dr. J. D. Van Cleve, Malden.

"Classification and Location of Abdominal Pain Relative to a Diagnosis," by Dr. John L. Brown, Campbell.

"Goiter and Its Surgical Treatment," by Dr. J. D. Hayward, St. Louis.

"Orthopedics and the General Practitioner," by Dr. G. Kenneth Coonse, Columbia.

"Skin Manifestations of Visceral Diseases," by Dr. Lee D. Cady, St. Louis.

"Eczema, Past and Present," by Dr. Norman Tobias, St. Louis.

"Injection Treatment of Varicose Veins," by Dr. R. C. Kitchell, Bismarck.

"Diabetes," by Dr. Paul Baldwin, Kennett.

"Psychiatric Problems of the General Practitioner," by Dr. Sylvester Doggett, Cape Girardeau.

The officers elected for 1932 are: President, Dr. E. J. Nienstedt, Blodgett; vice president, Dr. M. L. Cone, Campbell; recording secretary, Dr. W. S. Love, Charleston; corresponding secretary, Dr. J. D. Van Cleve, Malden; treasurer, Dr. Paul Baldwin, Kennett.

Fredericktown was selected as the meeting place for 1932.

A vote of thanks was extended to the people of Campbell for their excellent hospitality.

E. J. NIENSTEDT, M.D., Corresponding Secretary.

## WOMAN'S AUXILIARY

### Officers 1931-1932

President, Mrs. U. J. Busiek, Springfield.  
President-Elect, Mrs. David S. Long, Harrisonville.

1st Vice President, Mrs. Ralph W. Holbrook, Kansas City.

2nd Vice President, Mrs. R. S. Kieffer, St. Louis.

3rd Vice President, Mrs. H. M. Grace, Chillicothe.

4th Vice President, Mrs. W. T. Martin, Albany.



Corresponding Secretary, Mrs. F. T. H'Doubler, Springfield.

Recording Secretary, Mrs. J. A. Chenoweth, Joplin

Treasurer, Mrs. L. S. James, Blackburn.

Auditor, Mrs. J. J. Gaines, Excelsior Springs.

Directors (2 years): Mrs. George Ruddell, St. Louis; Mrs. G. B. Schulz, Cape Girardeau; Mrs. S. P. Howard, Jefferson City; Mrs. H. W. Carle, St. Joseph; Mrs. Calloway, Nevada. (1 year): Mrs. C. B. Summers, Kansas City; Mrs. J. D. Guyot, Higginsville; Mrs. D. A. Barnhart, Huntsville; Mrs. John A. Powers, Warrensburg; Mrs. P. L. Patrick, Marceline.

### ST. LOUIS MEDICAL SOCIETY AUXILIARY

The first of the regular monthly meetings of the Woman's Auxiliary to the St. Louis Medical Society was held at the Medical Society building, Friday, October 30. Since this meeting had been designated as "Public Relations Day," Mrs. Herbert S. Langsdorf, chairman of the committee on public relations, had invited welfare representatives of various women's organizations as special guests.

Some idea of the large and enthusiastic attendance may be gleaned from the fact that Mrs. Tyre H. Hale, chairman of the luncheon committee, and her assistant hostesses found themselves (for the first time, perhaps) in the embarrassing situation experienced by that famous character of our childhood days, "Old Mother Hubbard"!

Because the president, Mrs. Francis Reder, and the first vice president, Mrs. John Zahorsky, were not able to attend the meeting, Mrs. R. C. Fagley, second vice president and chairman of the program committee, presided.

Dr. Curtis H. Lohr, hospital commissioner of St. Louis, who was scheduled to speak on "Needs of Our Institutions" could not be present on account of illness. Dr. James Lewald, of the St. Louis Training School, consented to act as substitute for Dr. Lohr and gave a very enlightening and instructive talk on "Public Institutions and Their Needs."

Mrs. Virgil Loeb contributed some very interesting remarks on the milk situation in St. Louis.

*Bulletin, St. Louis Medical Society.*

### MEETING OF STATE BOARD

The State Board of the Woman's Auxiliary to the Missouri State Medical Association met October 7 at the Kansas City Art Museum, the President, Mrs. U. J. Busiek, Springfield, presiding. As the recording secretary was absent the President appointed the corresponding secretary, Mrs. F. T. H'Doubler, Springfield, to act as secretary pro tem.

Mrs. S. P. Howard, Jefferson City, moved, and Mrs. D. S. Long, Harrisonville, seconded, that the State Board assess each Auxiliary 25 cents per member to cover the cost of publishing a Year Book.

The Andrew W. McAlester Memorial Fund was discussed and letters from Drs. W. L. Allee, Eldon, and E. J. Goodwin, St. Louis, were read commending the Auxiliary on donating a gift to this fund. Mrs. M. P. Overholser, Harrisonville, moved an amendment to the above motion to the effect that the State Board assess each Auxiliary 25 cents per member to cover the cost of publishing a Year Book and that any surplus remaining be given to the Andrew W. McAlester Memorial Fund. The amendment was accepted by the author and seconded and carried and the motion as amended carried.

Mrs. A. B. McGlothlan, St. Joseph, moved that the

county auxiliaries be asked for voluntary contributions for the Andrew W. McAlester Memorial. Seconded by Mrs. S. P. Howard, Jefferson City, and carried.

Mrs. D. S. Long, Harrisonville, president-elect, was introduced and gave a few words of greeting.

Mrs. A. B. McGlothlan, St. Joseph, told of the plans of the National Auxiliary and of the several meetings she has attended in other states.

Mrs. M. P. Overholser, Harrisonville, spoke of the Public Relations department urging that all align with the Parent-Teachers' Associations and other organizations. She suggested a Public Relations Tea Party entertaining women of other organizations and supplying them with literature.

Mrs. J. De Voine Guyot, Higginsville, told how *Hygeia* was placed in the schools in Lafayette County through the Red Cross.

The change of the constitution was discussed and led to Mrs. A. W. McAlester, Kansas City, to consider.

Mrs. H. W. Carle, St. Joseph, invited the Board to meet in St. Joseph in March at the home of Mrs. McGlothlan. The invitation was accepted.

The meeting was preceded by a delightful luncheon served in the Kansas City Art Museum parlors by the members of the Jackson County Auxiliary and by a reception to the wives of doctors attending the Kansas City Southwest Clinical Society.

Board members present at the meeting were: Mrs. U. J. Busiek, Springfield; Mrs. D. S. Long, Harrisonville; Mrs. A. B. McGlothlan, St. Joseph; Mrs. F. T. H'Doubler, Springfield; Mrs. J. De Voine Guyot, Higginsville; Mrs. John A. Powers, Warrensburg; Mrs. M. P. Overholser, Harrisonville; Mrs. Evan Connell, Kansas City; Mrs. Ralph W. Holbrook, Kansas City; Mrs. H. W. Carle, St. Joseph; Mrs. S. P. Howard, Jefferson City, and Mrs. Roland Kieffer, St. Louis.

### NOTES

To extend *Hygeia* subscriptions is the one request that has come to us from the American Medical Association. One approved use to which your community's share in the funds from the Tuberculosis Christmas seals may be applied is the placing of *Hygeia* in the public schools. *Hygeia* subscriptions have been increased 50 per cent over last year due to the efforts of the Woman's Auxiliary.

The St. Louis Medical Society has issued a year-book for 1931-1932. It is most complete, giving the names of officers and past presidents, general information, the Constitution and By-Laws, a complete program of meetings, and the treasurer's report. It also includes Mrs. A. B. McGlothlan's acknowledgement of flowers sent to her when she became the National President at Philadelphia in June, 1931. A nice tribute is paid to Mrs. U. J. Busiek, Springfield, President of the State Auxiliary, and expressions of gratification were made on the election of Mrs. David S. Long, Harrisonville, president-elect of the State Auxiliary, to the presidency of the Federation of Women's Clubs of Missouri.

Mrs. L. S. James, Blackburn, president of the Woman's Auxiliary to the Saline County Medical Society, gave a luncheon at her home in November to all members of the Auxiliary and all women eligible to membership. Seventeen members and five guests attended. After a most delightful buffet luncheon a short business session was held. Letters

from various state chairmen were read. It was moved and carried that the Auxiliary make operating towels for Mercy Hospital, Kansas City. The December meeting will be a luncheon meeting at the home of Mrs. S. P. Simmons, Marshall, and the afternoon will be spent in making the towels.

The Buchanan County Auxiliary held its November meeting at the home of the treasurer, Mrs. W. C. Proud, St. Joseph. The members sewed carpet rags for rugs for the Methodist Hospital.

Mrs. A. B. McGlothlan, St. Joseph, President of the Auxiliary to the American Medical Association, during the last month has visited auxiliaries in Colorado, Utah, Idaho, Oregon, Washington and Minnesota and delivered an address at each meeting.

## MISCELLANY

### PETITION FOR MEDICAL COLLEGE DENIED

In re National College of Medicine and Surgery.  
No. 3550. Div. 5.

In the Circuit Court, City of St. Louis, Missouri.

*To the Honorable William H. Killoren, Judge:*

Your amicus curiae duly appointed herein on October 9, 1931, to examine said petition with reference to the lawfulness or public usefulness of the proposed corporation and show cause, if any there be, on some day to be fixed by the Court, why the prayer of said petition should not be granted, begs leave to report that he has examined said petition and has made such investigation touching the lawfulness and public usefulness of the proposed corporation, and to that end on October 15, 1931, he interviewed collectively Messrs. F. E. Deal, President, William R. MacCready, Vice President, and William F. Walker, Secretary of the proposed corporation; also John H. Caruthers of the law firm of Wood & Caruthers, 1903 Boatmen's Bank Building, attorneys for the petitioners herein.

Based upon such investigation, your amicus begs leave to report that Mr. Deal is a former advertising man, having been engaged in the general advertising business for a number of years, principally in Chicago. He has not at any time had any connection with medicine or with the medical profession. Mr. MacCready is an insurance broker, writing automobile, liability and property damage insurance. He is also engaged in the investigating business, and is associated in that connection in the law offices of Myrt A. Rollins, Esquire. He has not been in any way associated with the medical profession. Mr. Walker, who is addressed by his associates as Dr. Walker, is a graduate of the St. Louis College of Physicians and Surgeons, whose charter, your amicus is informed, was annulled at the instance of the State some years ago. Dr. Walker graduated from that college in 1922, but has only practiced for a period of thirteen months. That was during the years 1924 and 1925, and was in Little Rock, Arkansas. Subsequent to that time he applied to the Missouri State Board of Health for a license under the reciprocity provisions of the Missouri laws, based upon his practice in Little Rock. His application was denied and Dr. Walker then applied to the Circuit Court of Cole County for a writ of mandamus against the Missouri State Board of Health, which was denied, and his appeal from that ruling is still pending in the Supreme Court of Missouri. Except for the period of his practicing in Little

Rock, Dr. Walker has been engaged as a salesman for a pharmaceutical house—H. O. Hurley of Louisville, Kentucky. He has never been licensed to practice or practiced medicine in Missouri.

All of these gentlemen explained that their application herein is prompted by the suggestion of practicing physicians in Missouri that a B grade college is desirable in Missouri and is needed in order to afford opportunities to medical students who have not had the means to take two years of premedical college work. They quote Dr. James Stewart, Secretary of the Missouri State Board of Health, as holding that opinion, and Dr. Emmett P. North, a former President of the State Board of Health, as likewise holding such opinion. They say that they are the representatives in the petition herein of four men who have agreed to subscribe \$100,000 to finance the proposed college, but who refuse to reveal their names or identity. The desire of the last named men for secrecy as to their connection with the proposed corporation is based upon, first, their desire to avoid the solicitations of many physicians who might seek from them employment on the staff of the proposed college; and second, because having friends in the American Medical Association and professing to be in accord with the American Medical Association standards, they do not desire to disclose their mental reservations with reference to those standards, or their willingness to become associated with a B grade college, until the establishment of the B grade college has become definitely assured. In contrast with this alleged disapprobation of the American Medical Association's standards, Messrs. Deal, MacCready and Walker assured your amicus that the college, as well as the hospital for which permission is also sought in the charter herein applied for, will be conducted in strict accordance with American Medical Association's standards and requirements.

Messrs. Deal, MacCready and Walker further explained that up to some two or three weeks prior to the giving of their testimony to your amicus on October 15th, their purpose had been to organize a medical college and hospital under a charter which had been obtained in Kansas City and brought to St. Louis by Dr. Edward J. Burns, a chiropractor, under the name of the Missouri College of Naturopathic Physicians and Surgeons. This charter, they explained, covered all schools of the healing art, from eclecticism to surgery. Dr. Burns had taken quarters at 3117 Lafayette Avenue, which is a converted residence and was once used as an orphans' home and later as a private hospital. Up to three weeks prior to October 15, 1931, these gentlemen worked with Dr. Burns in the plans of establishing the proposed B grade college under the Naturopathic charter.

From the St. Louis Health Department records, your amicus has learned that an application was made to that department for permission to operate a college, hospital and clinic at the above address, and in that application the names of the officers were given as W. F. Walker, N.D., 5138 Eichelberger Street, President; Daniel H. Reeder, N.D., 3117 Lafayette Avenue, Vice President; Edward J. Burns, N.D., 3117 Lafayette Avenue, Secretary and Treasurer, and Robert H. Burns and F. E. Deal, directors. The names of the medical staff, as given in that application, were: Adolph M. Krall, M.D., of 2704 Cass Avenue, resident physician; and P. H. Harmann, M.D., of Missouri National Bank Building, W. S. McCall, M.D., of 2806 North 12th Street, N. J. Scotellaro, M.D., of 1007 Cass Avenue, and Ray-



mond A. Wieman, D.D.S., of 3635 North Newstead. Edward J. Burns' name was given in the application as superintendent.

Messrs. Deal, MacCready and Walker explained that the above named staff have at no time been associated with them, except through Dr. Burns, and that they severed all relationship with Dr. Burns two or three weeks prior to this hearing. Their reason for so doing, they said, was that they found that Dr. Burns' Naturopathic charter was far too comprehensive to provide an adequate staff for teaching the several branches of the healing art embraced within it, and that the medical degree which was authorized by that charter was the degree of "N.D." (Naturopathic Doctor), while their purpose was to organize a college having authority to confer the degree of M.D.

The articles of association for the proposed college, as submitted to the Court, authorize the conferring of the degrees of Doctor of Medicine, Master of Surgery, Doctor of Public Health, and such "Causa Honoris" degrees as it may see fit to grant "to scientists, physicians, or others who have shown academic or practical demonstration in the field of medicine and surgery and its branches."

During the interview on October 15, 1931, your amicus suggested to the above named applicants and their attorney that the identity of the financial and medical backers of the proposed college ought to be revealed in order that the Court might be informed as to the character of medical college and hospital it was proposed to conduct; and your amicus further urged upon each of the above named officers and their attorney, to submit the names of the backers and physicians who were so associated with them at any time prior to the filing of this report. But up to the time of this report no communication has been received from any of the officers or from their attorneys, giving the names of any one else but themselves. In response to a question which was put by your amicus to Mr. Deal as to why backers, who were actuated solely by a desire to help worthy boys to become doctors without two years of premedical college work as required by the A grade colleges, should insist on working in the dark, Mr. Deal's answer was, "Someone had to apply for this charter, and at that time it looked as if we were the goats."

On further interrogation Mr. Deal stated that he expected to remain connected with the proposed college in the business end of it and expected to become superintendent.

In answer to similar questions, Mr. MacCready stated that he expected profits from the matriculation fees and tuition of students, as well as the fees for clinical services. He stated that he believed that money could be made out of the school.

Dr. Walker stated that he had "visions and hopes of obtaining a license to practice in Missouri, and if I do I want to be associated with the college, from the fact that I had to struggle when I went to school, and if there is any chance that I can aid or assist any young boy or old boy who is poor, realizing the struggle that I had, that is my motive and object and view."

Because of the statements attributed to them at the hearing, your amicus has personally interviewed both Dr. James Stewart and Dr. Emmett P. North, and in behalf of both of them is authorized to report herein that neither of them holds the view that a B grade college is desirable in Missouri. On the contrary, Dr. Stewart says that the present facilities

for medical education in Missouri are ample, and the medical department of the University of Missouri already furnishes, through free tuition, an opportunity for poor students to obtain a full course in medicine without undue or insurmountable expense.

Dr. Stewart also authorized the statement that the medical schools inferior to A grade schools, which had existed in Missouri in the past, had already lowered the standards of the medical profession in this State, and had produced a condition where other states did not at times accept Missouri licenses with the full faith and credit which they should have been entitled to under the reciprocity laws of the other states.

He authorized the further statement that the State of Missouri had been put to large expense in the past to annul the charters of certain medical colleges of less than A grade standing (see State ex rel. Kansas City University of Physicians and Surgeons vs. North et al., 294 S. W. 1012, and State ex rel. Otto, Attorney General, vs. St. Louis College of Physicians and Surgeons, 295 S. W. 536), and he did not consider that any institution for medical instruction or a hospital for medical treatment should be permitted to be organized unless the medical staff and the physicians back of it were of high and unquestioned reputation.

Dr. North has authorized your amicus to quote him as follows:

Your letter of October 16th at hand, and as I understand the purport of this letter, the statement was made that a B class school of medicine was desirable in this State, there being none such at the present time, and there was an actual necessity for same. There was no such statement made by me of such a necessity. At the time of the hearing of the Medical Practice Act in 1921, the statements were made, but at the present time I am satisfied that this condition would not obtain. It so happens that I am a member of the Council on Medical Education and Hospitals of the American Medical Association, and I know authoritatively that this Council will not approve any class B school. The Council would investigate the school after its establishment, if it was established, and publish its findings. If these findings showed the school was not of the first class grade, this would mean that practically all the examining boards in this country would refuse to permit the graduates of the school to take the examination for license to practice. Thus the students would be throwing their time and money away and their diplomas would be worthless as means of attaining a license to practice.

I most emphatically would like to impress upon you the fact that there are not any community needs at this time that would occasion the establishment of a class B school.

Based on the foregoing information, your amicus concludes that the incorporation herein prayed for does not properly come within the purview of Art. 10 of Chapter 32 of the Revised Statutes of Missouri, 1929, under which said application is made.

Your amicus further concludes that there is grave doubt of the lawfulness and public usefulness of the proposed corporation.

Your amicus accordingly prays this Honorable Court, that a day certain be fixed by the Court and that your amicus be directed to show cause on said day why the petition for incorporation herein be

not granted, and that the petitioners herein be given three days' notice of such hearing.

Respectfully submitted,

(Signed) HARRY E. SPRAGUE,  
Amicus Curiae.

#### Decision of Judge Killoren

In view of the opinion as disclosed by the report of the amicus curiae, the order of the Court will be that the petition for pro forma decree of incorporation filed by the petitioners herein will be denied.

## TRUTH ABOUT MEDICINES

**THE MILO BAR BELL.**—Those who study the fantastic advertisements of the "big muscle boys," appearing in such magazines as *Physical Culture*, will remember the pictures of the superman, with the musculature of an ox, holding aloft a particular brand of dumbbells known as the "Milo Bar Bell." From the advertising, one gathers that by the use of this particular device, the puniest and weediest of individuals can develop into veritable Samsons. It appears that the Milo Bar Bell Company, which exploits this device, is a trade name used by one D. G. Redmond. The Federal Trade Commission has issued an order to Redmond to cease and desist from: "Representing by pictures, statements or otherwise, that physical development reasonably attributable to natural growth has been brought about by the use of respondent's bar bell or other appliance or course of instruction." (Jour. A. M. A., May 2, 1931, p. 1527.)

**ZINC CHLORIDE IN CANCER.**—The use of zinc chloride and similar caustics in the treatment of cancer has been practically abandoned by all except the "cancer cure" quacks. Such caustics are difficult of control, so that there is destruction of healthy, as well as of malignant, tissue; their action is slow, thus unnecessarily prolonging the pain of removal. Much better results can be obtained by the judicious use of surgery when the growth is operable, or by the use of radium and roentgen rays when the disease has advanced beyond the chance of its complete removal. The use of such caustics has been abandoned also by the progressive dermatologists in the treatment of small epitheliomas of low malignancy; they use, instead, radium, roentgen rays, or coagulation with high frequency currents. (Jour. A. M. A., March 7, 1931, p. 797.)

**MAGNETIC BELTS.**—The Council on Physical Therapy reports on the "Vitrona" and "Theronoid," stating that during the past four or five years there have been exploited to the public under various names solenoids for use in connection with the house electric-light circuit, for the alleged purpose of curing or alleviating human ailments by means of magnetism. The Council points out that the original device of this kind was the "I-on-a-co" and that two of the most widely advertised and extensively pushed imitations of the I-on-a-co are, respectively, the "Vitrona" of the Rodney Madison Laboratories, Inc., and the "Theronoid" of the Theronoid Corporation. The Council describes the construction of these outfits and discusses the claim that the apparatus will magnetize the iron in the blood and that such magnetization will bring about the cure of many diseases and conditions. The Council states that it has been known for a half-century or more that magnetism has no demonstrable effect on the human body and its processes. Because of many in-

quiries received, the Council carried out experiments with the Theronoid and Vitrona. Independently, A. J. Carlson carried out experiments and found that the Vitrona produced no effect on energy metabolism. Other experiments were carried out all of which demonstrated that the Vitrona produced no effect on the human organism within the influence of the coil. Similar experiments with the "Theronoid" showed that absolutely no absorption of power by a human subject surrounded by the Theronoid could be detected. (Jour. A. M. A., May 16, 1931, p. 1693.)

**THERONOID AND VITRONA.**—The old-time electric belts of our fathers' and grandfathers' days were crude affairs. They were to be worn next to the body and guaranteed to cure whatever ailed one. Quackery moves with the times. Human credulity is just as common a commodity as ever, but the methods of capitalizing it must, perforce, change with the times. The present-day successor to the old electric belt is the so-called magnetic belt. The first of these was put on the market by Gaylord Wilshire and called I-on-a-co. The I-on-a-co and its numerous imitations, are simple solenoids—coils of insulated wire that when plugged into the alternating current of the electric lighting system, produce a fluctuating magnetic field within the coil. While it has long been known by scientific men that magnetism has no effect on the physiologic processes of the body and while it has also been known that magnetic permeability of the human body is that of air, the public does not know it—and that is all that is necessary from the standpoint of the quack. A number of imitations of the I-on-a-co have been exploited, among them being Theronoid put out through one formerly associated with Wilshire and Vitrona by one Madison formerly employed by the Theronoid Corporation. In 1926 the Federal Trade Commission issued a complaint against the promoters of Vitrona charging that the device has no curative or therapeutic value, action or effect. Later the Commission issued a Cease and Desist Order. (Jour. A. M. A., May 16, 1931, p. 1718.)

**OLD TUBERCULIN IN THE TREATMENT OF TUBERCULOSIS.**—Koch reported tuberculin to the profession, in 1890, and it was hailed as a specific remedy; unfortunately, it was administered in a somewhat reckless way by inexperienced clinicians, and the disadvantages soon resulted in widespread condemnation. Tuberculin is not a selective curative remedy in the treatment of tuberculosis. It is not a specific. It should not be used by general practitioners in routine office practice, but by specialists in the sanatorium or home where there is careful clinical supervision of the patients. (Jour. A. M. A., May 16, 1931, p. 1720.)

**BISMUTH IN THE TREATMENT OF SYPHILIS.**—In the selection of a bismuth preparation the different factors come up as to whether one wants a soluble or an insoluble preparation, how often the dosage is going to be given, and how rapidly it is desired to have the preparation absorbed. The average effective bismuth preparation should contain from 0.03 to 0.2 Gm. of metallic bismuth in a dose and a course of therapy lasting eight to ten weeks should probably amount to from 0.6 to 2 Gm. of metallic bismuth. The Council on Pharmacy and Chemistry has gone on record as opposed to intravenous bismuth therapy. The therapeutic dose is too close to the toxic dose; therefore one is limited to intra-



muscular injections. If one is desirous of a preparation with comparatively rapid absorption and one that probably should be given twice a week, one might employ the thio-bisnol in a dose of 0.2 Gm. (metallic bismuth, 0.075 Gm. per dose); or the potassium sodium bismuth tartrate, aqueous solution, usually with a dose of 0.1 Gm. (metallic bismuth, 0.04 Gm. per dose). These soluble preparations should be given twice a week and are hardly suitable for general office practice. When one administration per week is feasible only, one is forced back on the use of a soluble preparation suspended in oil, or an insoluble salt suspended in oil. Recently there has been a turn to the use of liposoluble bismuth preparations; there is a claim that these combine the good points of both the soluble and the insoluble salt, but it is too early to answer this question definitely. (Jour. A. M. A., May 16, 1931, p. 1721.)

**THE CENSORSHIP OF MEDICAL AND DENTAL ADVERTISING.**—One of the primary reasons for the establishment of the Council on Pharmacy and Chemistry of the American Medical Association in 1905 was the desire of the editor of *The Journal of the American Medical Association* for scientific advice concerning claims made by advertisers for proprietary remedies. The Board of Trustees of the American Medical Association give the fullest support to the Council by refusing space in the advertising pages of publications of the American Medical Association to advertisers of proprietary remedies who failed to meet the Council's requirements. With that support the Council has made its work and its name respected. The advertising pages of the publications of the American Medical Association and of the state medical journals that cooperate afford a striking contrast to the pages of the *British Medical Journal* and of the *Lancet* (London), which exercise a so-called censorship without, however, having behind the censorship the type of scientific study and control represented by the Council on Pharmacy and Chemistry. The Council on Dental Therapeutics of the American Dental Association began its work with high ideals and with enthusiasm. In 1930 the trustees of the American Dental Association adopted a resolution to place the association squarely behind the Dental Council in its efforts. Then, at the midwinter session of this association, held in February, 1931, the board of trustees practically reversed its previous action, placing the business manager of the periodical in a position of judgment over the council and making him arbiter as to whether or not the criticisms of the council shall be referred to the manufacturer. Without the power of the trustees of the American Dental Association and the periodical of the association wholeheartedly behind its work, the Council on Dental Therapeutics will be ineffective. (Jour. A. M. A., May 16, 1931, p. 1697.)

**EFFECTS OF FEMALE SEX HORMONE ON CONCEPTION.**—Experiments on guinea-pigs, made with a view of determining the effects of injections of the female sex hormone on conception and on pregnancy, showed that the female sex hormone is the active agent in producing estrus. In previous studies it had been found that injections of the serum from pregnant women would delay the onset of estrus in guinea-pigs. These observations would seem to indicate an antithetic action between the female sex hormone and the corpus luteum hormone. Other experiments have indicated that the injection of the female sex hormone into pregnant white rats would terminate the pregnancy if it had not exceeded five days. Other investigators, also using white mice,

were able to prevent conception and to interrupt pregnancy at any stage with comparatively small doses of the sex hormone. With guinea-pigs small doses of the female sex hormone prevented conception and with larger doses it was possible to interrupt pregnancy and in some cases caused the death of the mother. (Jour. A. M. A., May 16, 1931, p. 1698.)

**SCIENCE AND THE ADVERTISER.**—*Printers' Ink*, a journal for advertisers, is anxious to establish a "Forget Scientists Week": "Perhaps you have been so foolish as to think that scientists worked at the business of science. Not so. They test cigarettes, tell frightened mothers about breakfast foods, warn young men against the dangers of something that usually ends with -osis. Now and then to be sure they make an epoch-making discovery which will bring about an astounding revolution in the manufacture of nine-count, full-fashioned galoshes. In short, they are scientists of the advertising pages." *Printers' Ink* recognizes the dismay that has been aroused in scientists generally by the exploitation of pseudoscience in advertising. It ridicules those who are now preparing copy for advertisements in modern periodicals because they are so utterly lacking in originality. Advertising in the periodicals of the United States has gone to lengths that have opened it to ridicule and censure. (Jour. A. M. A., May 23, 1931, p. 1799.)

**TUMS.**—From newspaper advertisements it is learned that Tums are "the mint that relieves stomach distress." They are said to be "made with the very finest mint obtainable; contain extra ingredients that quickly drive away heart-burn, acid indigestion, sour stomach and gas." And, of course the company does not pass up the public's present interest in halitosis. An analysis recently made of Tums indicates that this new marvel is essentially sugar and calcium carbonate (chalk) flavored with peppermint. If advertised truthfully, and with the warning that "stomach distress" may mean not merely a temporary hyperacidity but possibly peptic ulcer or even malignancy, there might be a legitimate place in the home medicine cabinet for these peppermint-flavored tablets of chalk and sugar. But, unfortunately, if advertised truthfully, they would probably not sell. (Jour. A. M. A., May 23, 1931, p. 1816.)

**VAPEX.**—Vapex is manufactured by Thomas Kerfoot and Company, Ltd., England, and is distributed in the United States by E. Fougere & Co., Inc., New York. The stuff is sold at a price that seems to be enormously in excess of the cost of its ingredients, which may explain the vast sums that have been spent on persuading the public that the product is a marvel of therapeutic efficiency. Some of the advertising slogans have been: "Vapex Amazed Scientists. . . Its vapor kills cold germs." "Instant relief for nasal affections with its delightful vapor." An advertisement in *Good Housekeeping* contains the preposterous statement to the effect that "relief from head colds is instantaneous with Vapex." Vapex was examined in the A. M. A. Chemical Laboratory and as a result of this examination the Laboratory concluded that a solution having essentially similar chemical and physical attributes as Vapex may be made as follows: Menthol 15 Gm., Oil of Lavender Flowers 15 c.c., Alcohol 94 per cent to make 100 c.c. It thus appears that this alleged "important medical discovery" is essentially menthol dissolved in alcohol and perfumed with oil of lavender! And it is sold with the implied claim that it will cure nasal infections, give quick relief from catarrh and hay fever, and prevent influenza. (Jour. A. M. A., July 18, 1931, p. 196.)

**MORE MEDICAL FRAUDS.**—The following are some of the minor swindles that have been debarred from the mails: Flowering Herb Company. This was the trade name used by one Walter L. Klinger, who did business from 5529 Dakin St., Chicago. He sold some herbs under the claim that they would cure diabetes. The United States mails have been closed to the Flowering Herb Co. and its officers and agents. Amol Company. The Amol Company of New York was a trade name used by one Maurice Lundin in the sale of what he called "Amol Pep Tablets." Under various trade names Lundin has been swindling the public for years through the United States mails by one scheme or another, largely of the sexual impotence variety and a number of fraud orders have been issued against these fraudulent schemes. Now a fraud order has been issued against the Amol Company because of the sale of Amol Pep Tablets. Until the postal authorities put Lundin in the penitentiary he will presumably continue to swindle the public. Fong Wan Herb Company. This was a trade name employed by Fong Wan, who sold through the United States mails so-called Chinese herbs that were alleged to cure various diseases and ailments. The mails have been closed to the Fong Wan Herb Company. Texas Products Company. This was a trade name used by Mrs. B. M. Cabanes, of San Antonio, Texas, who was selling through the mails two products—Gonococorina, which was claimed to be a cure for gonorrhea, and Anti-Pyorrhea, sold as a cure for diseases of the mouth, bleeding, inflamed gums, "bad breath," etc. A fraud order having been previously issued on a business run by this woman under the name, National Medical Products Company, it has now been extended to cover the Texas Products Company. Universal Sales. This was a trade name used by one C. H. Bernard, who sold through the mails a so-called Vacuum Muscle Massager, commonly known as a vacuum pump, for the alleged purpose of developing the male sexual organ. The business was declared a fraud and debarred from the mails. Holmes' Dead Shot. Benjamin P. Holmes, a Georgia farmer, for some years sold through the mails a fraudulent nostrum for the alleged cure of syphilis and gonorrhea. The post office authorities issued a fraud order against Holmes, debarring him from the use of the United States mails. Subsequently the same scheme was operated under the names of Mrs. B. P. Holmes and Effie Holmes and the order was extended to include these names. Still later the business was continued under the name of O. Holmes and the fraud order was extended once more. It seems a pity that Holmes has not been prosecuted criminally and sent to the penitentiary. (Jour. A. M. A., June 6, 1931, p. 1974.)

**USE OF SALINIZED WATER IN INDUSTRY.**—At the present time salines are regarded as preferable to dextrose in the prevention and treatment of factory cramps due to excessive loss of fluid and salines through sweating. Both prevention and treatment of cramps are well abetted by the intake of dilute saline solutions to compensate for loss through sweating. It is, however, undesirable that tablets of salts be taken into the body as such. It is better that the entire water supply be treated with salt to the extent of 1 per cent. A strength from 0.3 to 0.5 per cent, being more palatable, may lead to more extensive use, especially if kept at a temperature from 47 to 52 F. (Jour. A. M. A., June 13, 1931, p. 2055.)

**BISMUTHOIDOL, NOT ACCEPTABLE FOR N. N. R.**—The Council on Pharmacy and Chemistry reports that in 1926 Les Laboratoires Robin, Paris, France,

requested acceptance of Bismuthoidol, which was stated to be colloidal bismuth in isotonic solution. The product is distributed in the United States by E. Fougere & Co., New York. The Council examined the submitted evidence and informed the proprietors that it was insufficient to establish the claims advanced for the product. In 1930 E. Fougere & Co. again requested consideration of Bismuthoidol. The Council examined the further evidence which was submitted and informed E. Fougere & Co. that Bismuthoidol is at present unacceptable for New and Nonofficial Remedies because the submitted advertising shows that, if accepted, its acceptance would be used to advertise unaccepted products and because the claims made for the product are unwarranted. The Council's report calls attention to the fact that, while the Council holds the intravenous administration of bismuth preparations unsafe, Bismuthoidol is used intravenously. (Jour. A. M. A., June 20, 1931, p. 2104.)

**THE ELECTRO-CHEMICAL RING FRAUD.**—In 1915 a Post Office fraud order was issued against the Electro-Chemical Ring Company of Toledo, Ohio. According to the fraud order the Electro-Chemical Ring Company was a trade name under which Walter G. Brownson and his son, Edward G. Brownson, operated a fraudulent business. It consisted in selling rings made out of ordinary, commercial iron, for \$2 under the claim that wearing the ring would result in the cure of such conditions as Bright's disease, diabetes, epilepsy, goiter, catarrh, cancer, etc. Subsequently attempts were made to continue that business under other names. In 1930, the scheme was revived under the name of "Walter Limber" and a fraud order has now been issued against the name of "Walter Limber." (Jour. A. M. A., May 23, 1931, p. 1816.)

**EARLE LIEDERMAN, ONE OF THE "BIG MUSCLE BOYS."**—The Federal Trade Commission has been doing some excellent work in the medical field by curbing the activities of some of the faddists, quacks and nostrum exploiters. The Commission has been able to attack certain abuses in the medical field that could not be reached by the postal authorities or by the Department of Agriculture. One of the latest orders issued by the Federal Trade Commission has been in the matter of one Earle Liederman, one of the bare-torso, big-muscle persons, whose advertising might lead a puny store clerk to believe that by purchasing Liederman's "course" he may become a second Sandow. The Commission investigated the business of Liederman and issued an order that he discontinue certain unfair trade practices which had been used in the sale of his "course." (Jour. A. M. A., May 30, 1931, p. 1891.)

**CHI-HO-WA, A FRAUDULENT RHEUMATISM CURE.**—The Chi-Ho-Wa Remedy Company of Little Rock, Ark., is a trade name employed by H. L. Jones, a former railroad engineer, in selling a so-called cure for rheumatism—"Chi-Ho-Wa." Jones also received mail addressed "H. Jones" and "Box 147." The business was conducted from Jones' residence and consisted in the sale of an eight-ounce bottle of a preparation for which \$4 was asked. When analyzed by federal chemists, Chi-Ho-Wa was found to be mainly alcohol and sugar. There were also certain resins and a very small amount of colchicine. Jones obtained his victims through newspaper advertisements. The postoffice authorities found the business fraudulent and a fraud order was issued against the Chi-Ho-Wa Remedy Co., H. Jones, their officers and agents, and Box 147, all at Little Rock, Ark. (Jour. A. M. A., May 30, 1931, p. 1892.)



**SULFOBETIN NOT ACCEPTABLE FOR N. N. R.**—Sulfobetin is a product of Sulfobetin-Vertrieb, Bratislava, Czechoslovakia: its consideration was requested by the American representative, Alex Friedmann & Co., Chicago. Sulfobetin is marketed in the form of tablets: Sulfobetin Antidiabeticum; Sulfobetin Bio, and Sulfobetin Cutis. Sulfobetin is stated to consist of organic nitrogen containing sulphur iodide compound. Sulfobetin Antidiabeticum was stated to contain Sulfobetin and yeast; Sulfobetin Bio was stated to contain Sulfobetin and powdered iron; and Sulfobetin Cutis was stated to contain Sulfobetin, yeast and animal charcoal. The Council on Pharmacy and Chemistry reports that Sulfobetin, Sulfobetin Antidiabeticum, Sulfobetin Bio and Sulfobetin Cutis are unacceptable for New and Nonofficial Remedies (a) because the identity and chemical composition of "Sulfobetin" is indefinite and because no evidence is supplied to show that the composition and uniformity of the preparations stated to contain it are controlled; (b) because no evidence for the therapeutic value of Sulfobetin or of the preparations containing it has been supplied; (c) because the names Sulfobetin Antidiabeticum and Sulfobetin Cutis are therapeutically suggestive, and (d) because no evidence for the rationality of a mixture of Sulfobetin with yeast, of Sulfobetin with powdered iron, or of Sulfobetin with yeast and animal charcoal has been furnished. (Jour. A. M. A., June 13, 1931, p. 2036.)

**IRON AND COPPER IN THE DIET.**—There have developed evidences that certain minerals which occur in small quantities in natural foods enter into the nutritive exchanges of the organisms in ways more important than has heretofore been believed. For many years claims of the biologic significance of a number of such elements have been heard. They are almost inevitable contaminant of foods, so that it has been extremely difficult to determine decisively whether zinc, nickel, cobalt, manganese, copper and others are chance constituents of the animal organism, or whether one or more function in some essential process. Recently attention has been focused on one of these elements by the discovery that copper possesses the property of supplementing iron in forming hemoglobin in certain types of experimental anemia. Nutritional anemia can apparently be best corrected in several species by the addition of copper as well as iron to the defective rations. There also is considerable evidence that important functions are performed by manganese. Many analyses of foods concerning the mineral content have become available so that the daily intake of these elements may be judged. Wheat bran, blueberries, whole wheat, split peas, and navy beans are rich in manganese. Calf liver, oysters, beef liver, mushrooms, currants and chocolate are rich in copper. Pork liver, beef liver, spinach, lima beans, calf liver and navy beans are rich in iron. Vegetables and cereals are the chief contributors of iron. Fruits are an important source of all three elements. (Jour. A. M. A., July 18, 1931, p. 180.)

**THEELIN AND THEELOL.**—The announcement three years ago of the separation of a potent ovarian hormone from the follicular fluid by Allen and Doisy marked a distinct step in the direction of progress. The product had an estrus-promoting activity that could readily be assayed. Other investigators also have been engaged in the study of ovarian hormones, and medical journals carry accounts of a considerable number of products each designated by some distinctive trade name. A new era was ushered in when Doisy announced, at the thirteenth International Physiological Congress in 1929, the

isolation of a hormone in crystalline form. The Council on Pharmacy and Chemistry of the American Medical Association adopted the name "theelin," selected by Doisy, as the nonproprietary designation to be used in New and Nonofficial Remedies for the ovarian hormone made by the process of Doisy. Last year Doisy and his coworkers recorded the discovery of a second estrogenic substance in the urine of pregnant women. It is a triatomic alcohol for which the name theelol has been proposed. Theelin appears to be approximately twice as active as theelol in adult spayed rats, whereas theelol is six or seven times as active as theelin in immature female rats. It is too early to speculate on the possible uses of these two substances. (Jour. A. M. A., July 4, 1931, p. 33.)

## FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry for inclusion in Accepted Foods:

**KNOX SPARKLING GELATINE (No. 3)** (Charles P. Knox Gelatine Company, Inc., Johnstown, N. Y.). This product is essentially the same as Knox Plain Sparkling Gelatine No. 1. Each carton contains two envelopes of Knox Plain Gelatine and one envelope of fruit acid (citric acid). The citric acid is intended for admixture with the gelatin in various recipes. (Jour. A. M. A., March 14, 1931, p. 861.)

**LAND O'LAKES SWEET CREAM BUTTER** (Land O'Lakes Creameries, Inc., Minneapolis). A packaged, salted or unsalted butter graded by official federal-state butter graders as rating 93 score or higher. The cream used in the manufacture of this butter, the conditions, equipment and process of manufacture, and the final product must meet certain published standards and requirements adopted by the corporation. Before packaging, the butter is graded according to government standards by federal-state butter graders appointed by the U. S. Department of Agriculture in cooperation with the Minnesota State Department of Agriculture. The composition of the salt butter is: moisture, 15.8 per cent; milk-fat, 80.7 per cent; curd, 1 per cent; salt, 2.5 per cent. The composition of the unsalted butter is: moisture, 16 per cent; milk-fat, 83 per cent; curd, 1 per cent. (Jour. A. M. A., March 14, 1931, p. 861.)

**KNOX PLAIN SPARKLING GELATINE (No. 1)** (Charles B. Knox Gelatine Company, Inc., Johnstown, N. Y.). An unflavored, unsweetened granular gelatin. Knox Gelatine is not chemically bleached nor does it contain preservatives. Strict sanitary control is exercised in the manufacture. The composition is: moisture, 13 to 14 per cent; ash, 1 to 1.2 per cent; protein, 85 to 86 per cent; fat, 0.1 per cent; arsenic as  $As_2O_3$ , 0.6 parts per million; copper as Cu, 2.5 parts per million. Knox Gelatine contains no sugar or added flavor. It is one of the most readily digested proteins.

**VELVEETA** (Kraft-Phenix Cheese Corporation, Chicago). A delicious cheese food. Kraft Process American Cheese with added milk sugar, milk minerals and water. A cheddar cheese admixed with cream (or butter and skim milk powder), milk-whey powder and salt. The approximate composition is: moisture, 44 per cent; ash, 6 per cent; fat, 25.5 per cent; protein, 18 per cent; lactose, 6.3 per cent; calcium, 0.53 per cent; phosphorus, 0.71 per cent; 75 mg. of Velveeta is equivalent to 10 mg. of butter in vitamin A potency. Velveeta is claimed by the manufacturer to be richer in milk minerals and lactose than the usual cheeses not containing the milk-whey. (Jour. A. M. A., March 21, 1931, p. 947.)

## BOOK REVIEWS

**CLINICAL DIETETICS.** A Textbook for Physicians, Students and Dietitians. By Harry Gauss, M.S., M.D., F.A.C.P., Instructor in Medicine, University of Colorado School of Medicine. Assisted by E. V. Gauss, B.A., Formerly Assistant Dietitian, Presbyterian Hospital, Denver, Colorado. Illustrated. St. Louis: The C. V. Mosby Company. 1931. Price \$8.00.

The author has attempted to place the subject of diet in health and disease on a rational basis rather than upon the empiric methods which held sway until the beginning of the present century; he has succeeded rather well. Menus for a full week are presented in detail for each of the diseases taken up and the reasons for such a combination of foods made clear. The long discussion given over to the chemistry of food and digestion which occupies almost the first third of the book might be shortened without lessening the value of the volume. But if so much is included that is not really germane to the subject of clinical dietetics, then this reviewer thinks that extensive research by Alvarez into the mechanism of the digestive tract is deserving of mention if not elaboration.

The exclusive use of whole wheat bread and the consumption of two pounds of fruit and vegetables daily in health is advocated in order that the necessary roughage may be obtained—oh, if only this "rough stuff" could be relegated back to the empiric age! Even so the normal lists contain only a pound to a pound and a half of roughage. On the other hand, it is good to see ample calcium intake provided by the frequent use of milk.

Diets for many diseases and diseased states are presented in readable manner. The much-heralded roughage comes in for more than its just share of praise in the treatment of atonic constipation. Alkaline ash diets are suggested in the treatment of the sclerotic degenerative conditions. In this part of the book much space is given to the subject of diagnosis—would that the diagnosis of diabetes, for example, were as simple as the author makes it appear! The last twenty pages are given over to food tables.

It is to be anticipated that in subsequent printings such typographical errors as "water-soluble vitamin A," the listing of "insulin" instead of "inulin" among the polysaccharides, "hands of connective tissues," and bleeding gastric ulcer was proved by "the presence of blood and hydrochloric acid," will be corrected. On the whole, the advice given is sane and the diet lists as presented appear practicable if one use the proverbial grain of salt in allocating the roughage content of his patient's diet. B. Y. G.

**A COMPEND ON BACTERIOLOGY.** Including Pathogenic Protozoa. By Robert L. Pitfield, M.D., Attending Physician, Germantown Hospital, Philadelphia, and Howard W. Schaffer, M.D., Pathologist to the Memorial Hospital, Philadelphia, etc. Fifth edition, with 4 plates and 82 other illustrations. Philadelphia: P. Blakiston's Son & Co. Price \$2.00.

If there is any reasonable place for a compend of bacteriology this book would fill it better than any that I know of. There are numerous instances of poor organization in the chapter on Classification and a few such instances throughout the book. I admire the ability shown in the book of being brief about things which cannot be abbreviated and wish I could feel as certain about some things as the au-

thor of this little book appears to be. However, as a short cut to a passing grade it will do in most medical schools. H. N. A.

**CHEMISTRY FOR NURSES.** Including Certain Essential Principles From Inorganic, Organic and Biochemistry. A Combined Text and Laboratory Manual. By Harry C. Biddle, A.M., Instructor in Chemistry, School of Nursing, Western Reserve University, etc. With 74 illustrations. Philadelphia: F. A. Davis Company. 1931. Price \$2.75.

This book meets a commonly felt need by nursing educators for a tangible application of the knowledge of chemistry to daily tasks involved in nursing. It is elementary but the subject matter is combined with familiar topics of interest to gain and hold the attention of the student and enable her to have a practical understanding of the processes that she observes every day.

The plan of the book lends itself readily to use in other nursing courses, particularly in materia medica and dietetics and the teaching of underlying principles involved in the practice of nursing procedures. A practical application is made that will be readily understood by and interesting to the student. There are many good illustrations and charts. The author has increased the usefulness of the book by omitting much bulky material but has given an opportunity for expansion of study in the number of references he has suggested. A. L. L.

**AN INTRODUCTION TO PHARMACOLOGY AND THERAPEUTICS.** By J. A. Gunn, M.D., D.Sc. (Edin.); M.A. (Oxon.), Professor of Pharmacology in the University of Oxford and Fellow of Balliol College, etc. Second edition. Oxford University, American Branch, 114 Fifth Avenue, New York. 1931. Price \$1.50.

This volume is a good compend of drugs and their uses, but hardly answers the purposes of a handy reference book for applied therapeutics. A. S. W.

**FRACTURES OF THE JAWS.** By Robert H. Ivy, M.D., D.D.S., F.A.C.S., Professor of Maxillo-Facial Surgery, Graduate School of Medicine, and of Clinical Maxillo-Facial Surgery, School of Dentistry, University of Pennsylvania, etc., and Lawrence Curtis, A.B., M.D., D.D.S., Assistant Professor of Maxillo-Facial Surgery, Graduate School of Medicine, and School of Dentistry, University of Pennsylvania. Illustrated with 177 engravings. Philadelphia: Lea & Febiger. 1931. Price \$4.50.

This book should receive wide acceptance as the standard reference for fractures of the jaws. Coming from known authorities in the field, one is prepared to find an excellent presentation. As early as the preface the simplicity and straightforwardness found throughout the book are apparent.

Anatomical descriptions and illustrations are clear. "General Considerations on Fractures" has well been cut to two pages for which appreciation is due the authors. One is next agreeably surprised by finding information, which he can almost memorize, on fractures of the mandible based mainly on a series studied by the authors.

Descriptions of all types of fractures are given, beginning with the simpler and more frequent ones.

Treatment is given clearly and with fairness to all acceptable types of procedures, but one is glad to find definite views of the authors throughout. Al-



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#### PEST-HOUSE DAYS ARE IN DIM PAST

The day of the pest-house is over, writes Dr. W. W. Bauer in *Hygeia*. Any one who calls a hospital by that name is fifty years out of date. This is the day of isolation or contagious disease hospitals, he writes.

In the old days, there was a shack at the edge of town in which persons with contagious diseases were isolated without proper care. It was difficult even to get nurses to care for them. Parents punished their children if they played within a mile of the pest-house.

Today, contagious diseases are in isolation wards of the hospitals. Modern methods of care eliminate

the danger of cross-infection. Even visiting is possible by having glass enclosed corridors for the visitors. Children with contagious diseases get better care than would be possible at home, and mothers are saved from the wear and tear of sleeplessness and worry.

#### STUDIES ON DIGITALIS IN AMBULATORY CARDIAC PATIENTS

Harry Gold and Arthur C. DeGraff, New York (Journal A. M. A., Oct. 25, 1930), assert that in the average ambulatory cardiac patient with auricular fibrillation and moderate heart failure a much lower "effective concentration" of digitalis in the body suffices to produce full therapeutic effects than is required in the average bedridden patient in advanced congestive failure. The authors have shown that, in the ambulatory patient, full therapeutic effects, as judged by the usual clinical criteria of improvement, can be produced by the daily repetition of a relatively small dose of the drug that can then be continued as the daily maintenance dose without producing toxic symptoms. It is well known that such results cannot be obtained with such small doses in the average patient with far advanced congestive failure; the larger daily doses usually required in these cases cannot be long continued without producing toxic symptoms. In the average ambulatory cardiac patient there is a wide margin between the minimum dosage that produces full therapeutic results and the maximum that can be tolerated without toxic symptoms. This margin is frequently smaller in patients with far advanced failure and the latter often require the largest dosage that can be tolerated in order to produce the best results. It is the accepted practice to use relatively larger doses of digitalis to produce the full therapeutic effects and then relatively smaller daily ones in order to maintain these results for long periods of time. The usual explanation is that the smaller doses are necessary in order to maintain the high "effective concentration" of the drug produced by the larger ones. Evidence has been set forth proving, however, that the "effective concentration" of the drug within the body necessary to maintain the full effects is usually much lower than that required to produce them in the beginning.

#### SATISFYING FOODS TAKE MORE TIME TO BE DIGESTED

Why do we butter our bread? Because the addition of fat retards the digestion and lengthens the period of satisfaction after a meal, answers Jessie Allen Brown in the May *Hygeia*, in an article entitled "Filling Foods."

Some foods stick to our ribs while others do not, says Miss Brown. The feeling of satisfaction depends on the length of time that the food remains in the stomach and the amount of digestive juice that is required. As long as there is a certain amount of activity in the digestive process, we are satisfied.

The protein foods seem to be the best satisfiers. Meat, milk, eggs and fish stay with us longer than vegetables and starchy foods. The addition of cheese to a vegetable salad and of salad oil increases the satiety value of the dish.

Children show the zero hour for bad behavior just before a meal. Then they are likely to be tired and hungry and to exhibit ill temper. Get a few bites into them, Miss Brown advises, and there will be a magic response.



## EMERGENCIES MAKE TEST OF OUR MENTAL HEALTH

An emergency—either good or bad—tests the stamina of mental health. It is as difficult to meet brilliant success without losing one's head as it is to meet misfortune and failure, says E. Lee Vincent in *Hygeia*.

Health embodies not just physical well being, but also mental well being, says Miss Vincent. Most persons are beginning to realize that to meet each day's program with interest is as important as to meet it with physical vitality. To be cheerful, tolerant and self-controlled, she says, is to give evidence of mental health.

The gift of mental health, Miss Vincent informs us, is not a chance gift of personality decreed at birth by the whim of fate. It is rather to be achieved through healthful living. Sound health habits do much to build the necessary stamina to meet both physical and mental emergencies.

## MODERN SPECTACLES DATE BACK TO NERO

Glasses for the aid of our sight are almost as old as the universe. It is not far-fetched to think that the Atlanteans 22,000 years ago knew of lenses, Dr. Fassett Edwards writes in an article on the history of glasses in *Hygeia*.

The ruins of Ninevah yielded the oldest known piece of transparent glass which was dated 2,600 years ago. Pliny has recorded, Dr. Edwards reports, that Nero winked and blinked and brought objects close to his eyes. Nero was wont to gaze on gladiatorial fights through a glass cut from a huge emerald.

The first of our present-day spectacles was produced by Roger Bacon, who in about the year 1280 A. D. made a reading glass to be used in magnifying the smallest letters. Benjamin Franklin was the inventor of the bifocal spectacles.

## GUARDING HEALTH IS IDEAL OF CAMP

Safeguarding the health of the camper is the highest ideal of the summer camp, if we take the opinion of A. Mandelstam, a camp director, writing in *Hygeia*. The camper's good health should be the dominant note in the service of the camp, no matter how the other ideals may differ.

Most camps require a preseason health examination or at least a statement from the family doctor. This protects the camp against the invasion of infection, and it prevents the camper from overstraining a weak organ if he has one without his knowledge.

Mr. Mandelstam describes a camp in Maine where the health angle is certainly not neglected. A system of daily individual medical care not only protects the campers, but it reassures the parents. A report of the health of each boy is made every morning by the counselor, and the boy is sent immediately to the camp doctor if he shows symptoms of disease.

Plumbing facilities at summer camps should be adequate, says Mr. Mandelstam. Tests of the drinking water should be made before the season opens.

## SLEEPLESSNESS IS DETRIMENTAL TO PERSON'S HEALTH

Being a working person by day and a watchman by night is a particularly bad combination. The insomniac is either going to become an inefficient worker or else he is going to injure his health, ac-

cording to Dr. Thurman B. Rice, the author of "Lessons in Relaxation" in *Hygeia*.

Various things keep the insomniac awake past the hour when he should be asleep. He may be chilly. An extra blanket kept at the foot of the bed will solve that problem unless he is a habitually chilly person. Then a hot bath before retiring, an electric footpad or a heated brick will add to his comfort.

Eat a little before retiring is Dr. Rice's advice. Milk and crackers are ideal for late lunches. Various warm foods serve well to attract the blood to the abdominal regions and to promote sleep.

The "nesting thought" is Dr. Rice's particular device for sleep. Live over again your pleasurable experiences, he says—recall the pranks of childhood, love affairs, the honeymoon, vacations—or else plan for the future; do all the things that you cannot do in the daytime.

It's all wrong to work hard trying to go to sleep. Counting to a million or counting sheep makes you work when you come to bed to rest and sleep. The best way to get to sleep is to give no thought to the matter and soon the trick will be done.

## PROTECT CHILDREN'S EYES FROM STRAINS

Young children should not be encouraged to use their tender eyes for near work and their toys should be large, observes Dr. Joseph H. Marcus in his article on the eyes, ears, nose and mouth of the child in *Hygeia*. Eyestrain in children is frequently overlooked. Though young children are often farsighted, the condition gradually disappears.

Infants are practically both blind and deaf at birth. The baby does not recognize voices until he reaches the age of 3½ months and he does not recognize his father and mother on sight until he is about 5 months old.

The nostrils and ears of a baby require careful attention. A fine piece of linen twisted or a cotton applicator may be used to clean them. Sometimes a child will insert beads, peas or buttons in the ears and nostrils. If the foreign bodies cannot be removed with ease, a physician should be sought at once before the swelling of the membrane makes them all the more difficult to remove.

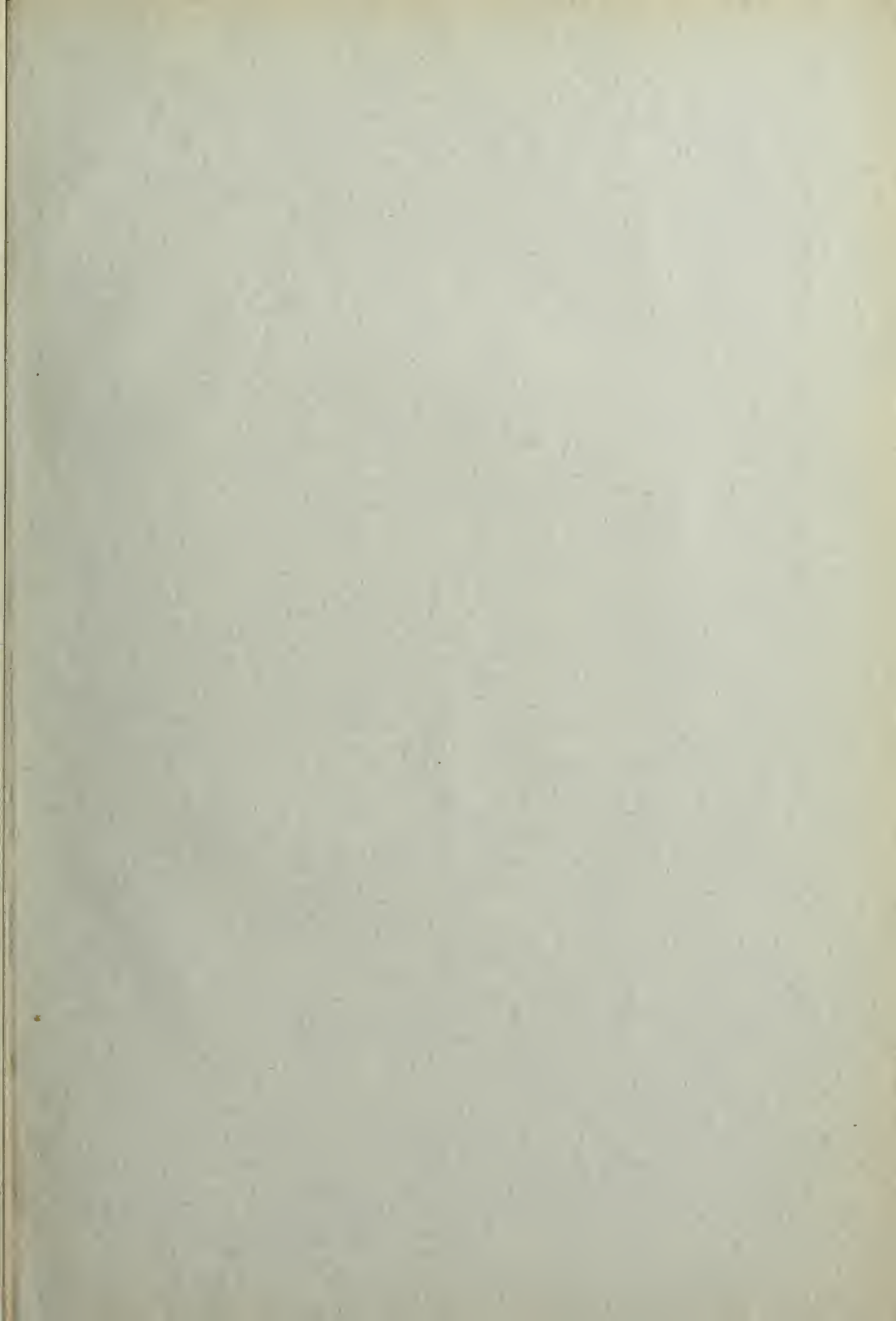
Thumb-sucking produces evil effects that will last all through a child's life, says Dr. Marcus. It induces a constant flow of saliva; it spoils the natural arch of the mouth and causes protrusion of the upper jaw; germs are carried into the system and it may cause a spinal curvature. Protruding teeth, thick lips, deformed palates and fingers are all lasting effects of this habit.

## SURPRISE TRAYS

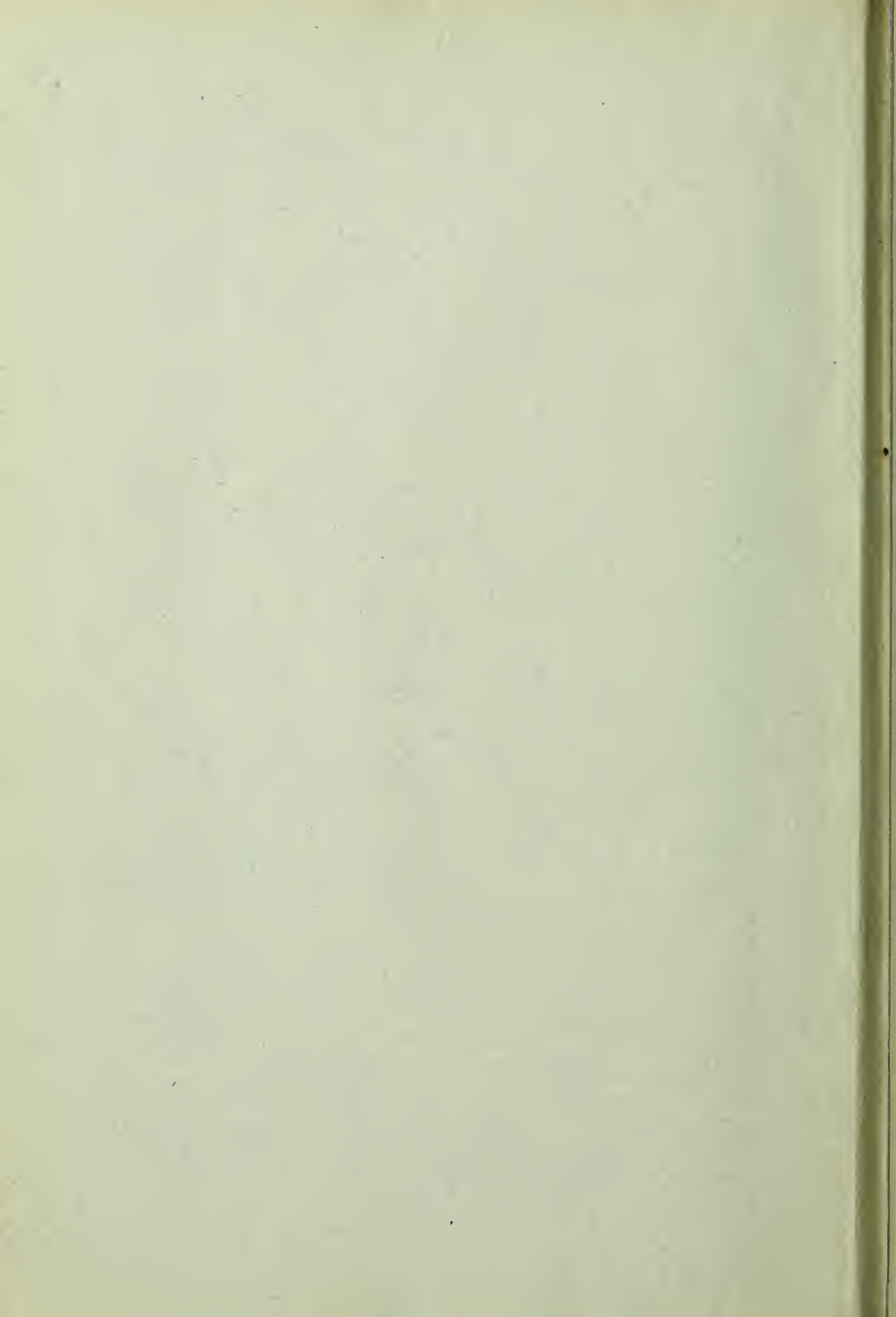
An elf made out of an orange, with long legs and arms of buttered toast and pink sugar for rosy cheeks, is quite enough to tempt a convalescent child to eat his way back to health, writes Jean Haven in an article on convalescent foods in *Hygeia*.

## MEASLES

Practically everybody is susceptible to measles. It is known among people who live in congested areas as a child's disease only because few escape the infection during childhood, remarks Dr. W. W. Bauer in a *Hygeia* article. In remote parts of the earth, measles has been known to sweep through the adult population with many fatalities as soon as it was introduced from other countries.







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